Accelerate Learning STEMscopes Science TX Grade 4

Accelerate Learning STEMscopes Science TX Grade 4 Executive Summary

Section 1. Science-Related Texas Essential Knowledge and Skills (TEKS) and English Language Proficiency Standards (ELPS) Alignment

Grade	TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
Grade 3	100%	100%	100%	100%
Grade 4	100%	100%	100%	100%
Grade 5	100%	100%	100%	100%

Section 2. Instructional Anchor

- The materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.
- The materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

Section 3. Knowledge Coherence

- The materials are designed to build knowledge systematically, coherently, and accurately.
- The materials provide educative components to support teachers' content and coherence knowledge.

Section 4. Productive Struggle

- The materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

Section 5. Evidence-Based Reasoning and Communicating

- The materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.
- The materials provide teacher guidance to support student reasoning and communication skills.

Section 6. Progress Monitoring

- The materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.

Accelerate Learning STEMscopes Science TX Grade 4

- The materials include guidance that explains how to analyze and respond to data from assessment tools.
- The assessments are clear and easy to understand.

Section 7. Supports for All Learners

- The materials provide guidance on fostering connections between home and school.
- The materials include listening, reading, writing, and speaking supports to help Emergent Bilinguals meet grade-level science content expectations.
- The materials include a variety of research-based instructional methods that appeal to a variety of learning interests and needs.
- The materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

Section 8. Implementation Supports

- The materials include year-long plans with some practice and review opportunities that support instruction.
- The materials include classroom implementation support for teachers and administrators.
- The materials provide implementation guidance to meet variability in program design and scheduling.

Section 9. Design Features

- The visual design of materials is clear and easy to understand.
- The materials are designed to engage and support student learning with the integration of digital technology.
- The digital technology or online components are developmentally and grade-level appropriate and provide support for learning.

Section 10. Additional Information

- The publisher submitted the technology, price, professional learning, and additional language supports.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 2.1

Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.

1	Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS.	M
2	Materials provide multiple opportunities to make connections between and within overarching concepts using recurring themes.	M
3	Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS.	M
4	Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS. Materials provide multiple opportunities to make connections between and within overarching concepts using recurring themes. Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS. Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.

Evidence includes but is not limited to:

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS.

- The materials provide multiple opportunities to develop and practice grade-level appropriate scientific and engineering practices, as outlined in the TEKS. For example, in the "Investigating Forces" scope, students create a descriptive investigation in groups to show the effects of one or more forces. In the "Soil Formation Explore" scope, students engage in hands-on soil exploration that provides opportunities to develop SEPs including collecting observations and measurements as evidence and developing and using models to represent processes.
- The materials provide multiple opportunities to show mastery of grade-level appropriate scientific and engineering practices. For example, the materials include opportunities for students to ask questions that can be answered using evidence from investigations or gathered

by others. In a “Physical Science” scope, students use information and data to communicate how water, wind, and ice shaped the land on Mars over time. In the “Engineering Connection” portion, students define the problem, brainstorm, and plan safe and effective solutions that will keep sand from blowing out of a neighborhood sandbox.

- The materials outline how the students use scientific and engineering practices to investigate grade-level appropriate content concepts with opportunities to repeat the practices throughout the year. For example, in the “How Can Energy Be Transferred” scope, students are participating in stations to investigate the transfer of energy. The lesson states, "Explain to students that today, they will be completing 3 stations to investigate the different ways that energy can be transferred: by objects in motion, by waves in water, and by sound."

Materials provide multiple opportunities to make connections between and within overarching concepts using the recurring themes.

- The materials include opportunities for students to ask questions that can be answered using evidence from investigations or gathered by others. For example, in the Types of Energy Elaborate section, the students create a designated spot in the class called, "Muddy Waters" for their questions after watching a virtual experience and conducting a guided inquiry. Materials direct teachers to "Have students write their outstanding questions and unclear thoughts on sticky notes. Students can post their sticky notes in a designated spot in the classroom. This area is called the Muddy Waters because it is where unclear thoughts live.”
- For example, in the Resources section of the same scope, students discuss some advantages and disadvantages of using wind as a resource after watching a video about wind turbines. Patterns and cause and effect are also evident in STEMscopedia, where the students are asked, "Why is it important to find ways to use natural resources other than coal, oil, and natural gas for our human lives?”
- The materials identify overarching concepts using recurring themes and show how they connect within the materials. In Grades 3-5 Resources, teachers are provided Instructional Support with the section Recurring Themes and Concepts. Teachers are provided with PDFs that include what students are doing, what it looks like in the classroom, critical vocabulary, discussion prompts, and teacher notes. The materials state, "Science has recurring themes that can be found throughout the content. These recurring themes provide an opportunity for students to make connections between concepts taught throughout the year." For example, in Slow Changes to Earth's Surface scope, students identify and investigate cause and effect relationships to explain scientific phenomena or analyze problems in the “Making Connections” section of the scope page. The cause-and-effect relationship is revisited in Science Connections when students research and write about how water, wind, and ice have shaped the land on Mars over time. In the Sun and the Water Cycle scope, students understand how energy flows and matter cycles through the water cycle by dragging pictures and short explanations to the correct places in diagrams. In the “Water Travels in a Cycle” scope, students examine parts of the water cycle and model it.

Materials strategically and systematically develop students’ content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS.

- The materials strategically develop students’ content knowledge and skills appropriate for the concept and grade level as outlined in the TEKs. The materials use the 5E+IA model. For

example, The “Sun and the Water Cycle” scope starts with an engaging image showing the phenomenon of water droplets on the outside of a glass of soda. A thinking/talking activity guides teachers and students to discuss observations. In the Explore section, students construct models and explain the water cycle. In the Explain section, students reconnect to the phenomena with the Interactive Science Notebook that provides reflection opportunities for students to process the content from the Explores and the STEMscopedia. Students have several opportunities to apply what they learned in the Science Connection, Engineering Connection, Science Today, and Virtual Experience activities.

- Within the Engineering Connection section of the Investigating Forces scope, students are given a problem with criteria and constraints. The lesson description states, "Students will focus on the first five steps of the Engineering Design Process (defining the problem, brainstorming, planning, building, and testing) to plan and build model nests that protect bird eggs from cracking when they fall a vertical distance of eight feet."

Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.

- The materials include opportunities for students to ask questions and plan and conduct investigations. Each scope contains an Engineering Connection activity in the elaborate tab that allows students to ask questions and plan and conduct investigations. For example, students design sundials so people can track the time when a traditional clock is not available. Materials provide an opportunity for students to create questions about constructing a sundial.
- The materials include opportunities for students to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts. Materials include these opportunities with the Engineering Connection section of each scope. In the Grade 4 scope, Resources, the Engineering Connection has students redesign a solar oven and critique the plans of the other groups. This activity matches the scope content TEKs in that students are limited to $20 for supplies, which will require them to make better use of resources such as reusing materials. It also ties in with the Matter, Transfer of Energy, and Conductors and Insulators content TEKS because students must know the properties of matter, and how to convert the sun's energy into thermal conductors to cook food.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 2.2

Materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

1	Materials embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.	M
2	Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems.	M
3	Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

Materials embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS. Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems. Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.

Evidence includes but is not limited to:

Materials embed phenomena and problems across lessons to support students t in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.

- The materials use phenomena as a central anchor that drives student learning across grade-level content in each discipline (earth/space, life, physical science). Materials drive knowledge-building for students. Students examine phenomena using science and engineering practices through the lens of recurring themes and develop content knowledge as they work to construct explanations of the phenomena and/or solve engineering problems. Materials include an initial phenomenon in the first tab of every scope. The teacher shares phenomena through pre-assessment questions. Then, students participate in investigations in which they collect data and apply their learning to find the correct answers or solutions.
- For example, in the Transfer of Energy scope, students work in small groups to answer a driving question, brainstorm, research, plan, and rehearse a public service announcement. The lesson description states, "Students will create public service announcements (PSAs) to educate people about ways to use wireless headphones safely." In the Conductors and Insulators scope, the lesson description states, "Students will create commercials to creatively inform the community about a new kind of firefighter uniform that would protect firefighters from heat."

Accelerate Learning STEMscopes Science TX Grade 4

Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems.

- The materials provide opportunities to leverage students' prior knowledge and experiences related to phenomena and engineering problems, ensuring that the connections are made to previous science TEKS while also allowing students to communicate their experiences outside of school. Each scope has an Accessing Prior Knowledge section which states, "This element is designed to uncover student misconceptions and provides a measurement of student learning to act as a baseline." This section also includes teacher guidance on misconceptions based on the students' answers to the probe.
- For example, the scope Mixtures has an activity called Agree or Disagree. where students decide if they agree or disagree with claims made by three students after mixing water, salt, and pepper. Then, students state whether they have created a mixture or a solution and explain their reasoning.
- The Engineering Connection activities for each scope are based on problems that are recognizable by many students. For example, in Resources, students design a solar oven for a camping trip because there is a burn ban, and they cannot light a fire to cook food. Since the students live in an area of Texas that rarely gets snow, the students create snow globes to show the effects of a snowstorm in the Mixtures scope.
- The materials guide teachers and students to address potential areas of misunderstanding adequately. For example, students use their current knowledge of weather and climate to decide which statements they agree or disagree with. Materials provide teacher guidance on recognizing misconceptions such as "The weather in Texas is hot. Students tend to think that this is a true statement because Texas often does have hot temperatures. However, weather refers to more than just air temperature. Because weather refers to specific conditions at a given time in a certain location, it would be incorrect to say that the weather in Texas is hot because during certain seasons and in certain locations, it often is not hot. It would be more accurate to say that Texas has a hot climate in the summer."

Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.

- For example, in the Matter scope, materials include a scope phenomenon description that explains, "Students will watch a video showing the phenomenon of a root beer float is made. Teachers can use the *I Wonder* questioning strategy for engagement. The goal of this phenomenon and questioning activity is to engage students and to have them begin developing their understanding of classifying and describing matter using observable physical properties." The Making Connections section references the phenomena experienced in Mass, Temperature, and Magnetism. It states, "Students experience various phenomena related to the physical properties of matter through measuring and comparing the temperature of ice, water, and hot water, measuring and comparing the temperature of water in an aluminum can wrapped in white paper under a heat lamp and an aluminum can wrapped in black paper under a heat lamp, measuring the mass of pennies and a paperclip, and testing the magnetism of different items with a bar magnet. After students complete the activities, ask students how this activity relates to the Scope Phenomenon (found in the Engage section) of a root beer float being made. Encourage students to ask questions and communicate what they observed about

the physical properties of temperature, mass, and magnetism." Materials list applicable TEKS for content, science and engineering practices, and recurring themes and concepts.

- Materials include teacher information about scientific concepts for engineering tasks. For example, The Sun and the Water Cycle in the Engineering Connection description states, "Students will focus on the first three steps of the Engineering Design Process (defining the problem, brainstorming, and planning) to design solutions that will prevent water from evaporating from a rectangular family pool that is 40 ft. long by 20 ft. wide based on their understanding of the water cycle and the sun's role in the water cycle and explains to teachers that "Students will observe an image showing the phenomenon of water droplets on the outside of a glass of soda. Teachers can use a Thinking Cap questioning strategy for engagement. The goal of this phenomenon and questioning activity is to engage students and to have them begin developing their understanding of the continuous movement of water through the water cycle."." The Matter scope states in the Engineering Connections activity, "Students will focus on the last two steps of the Engineering Design Process (redesigning and sharing and critiquing) to evaluate the design of an apparatus that allows people to bob for apples and ensure that it fits within the criteria and constraints of the contest using their knowledge of physical properties such as the mass, volume, density, and the ability to float."
- Materials include a scope overview with clear teacher guidance for facilitating student-made connections across core concepts and scientific and engineering practices. For example, in The Sun and the Water Cycle scope, the scope overview explains how the students will make connections as they engage in activities throughout the scope.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 3.1

Materials are designed to systematically, coherently, and accurately build knowledge.

1	Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels.	M
2	Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding.	M
3	Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices.	M
4	Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.	M

Meets | Score 6/6

The materials meet the criteria for this indicator. Materials are designed to systematically, coherently, and accurately build knowledge.

Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels. Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding. Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices. Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.

Evidence includes but is not limited to:

Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels.

- The materials connect new learning to previous and future learning within and across grade levels. For example, in the Teacher's Guide, materials include a vertical alignment of the Science TEKs section that includes a Flashback and a Fast-Forward that address what is being taught within each unit and explain how it connects to previous and future learning goals.
- Materials are vertically aligned. For example, in grade 4, Patterns in Space Scope, students collect and analyze data to identify sequences and predict patterns of change in seasons, such as temperature changes and daylight length. The Flashback connects to previously taught Grade 3 knowledge and skills, such as constructing models and explaining the orbits of the Sun, Earth, and Moon in relation to each other.
- For example, in grade 4, Structures and Functions of Plants, students explore and explain how structures and functions of plants, such as waxy leaves and deep roots, enable them to survive in their environment. The Fast-Foward connects to the grade 5 skill to analyze the structures and functions of different species to identify how organisms survive in the same environment.
- The materials present content that builds complexity within and across units and grade levels. The Scope Description includes information that addresses what is taught within each unit and explains how it connects to previous learning goals under Spiral Opportunity. In Investigating Forces, students build on prior knowledge of how forces act on an object. The Spiral

Opportunity states, "In the Transfer of Energy scope, students observe how energy is transferred from one place to another through objects in motion. This relates to how different forces can be observed when objects come in contact with each other." Students apply knowledge by constructing and supporting an argument about forces using the phenomenon of using various substances on a waterslide to decrease friction.

- Materials are vertically aligned and build knowledge across grade levels. For example, in grade 2, students learn to classify matter by physical properties. Grade 3 students build on that knowledge by identifying how physical properties, such as their states of matter, can change. In grade 4, students observe different properties of matter and if those properties are conserved when combined with other substances to make mixtures. In grade 5, students learn about physical properties, such as substances' states of matter and solubility in water. In the Properties of Mixtures and Solutions scope, students explore how some liquids and solids dissolve in water while others do not, and how some substances maintain their physical properties when mixed together while others do not.

Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding.

- The materials include a progression of concrete, representational, then abstract reasoning when presenting concepts that allow for deeper conceptual understanding. The materials use the 5E +IA model and are structured to build student knowledge and skills as students experience a phenomenon before utilizing models as a tool for reasoning. Students are first exposed to a phenomenon and access prior knowledge in the Engage section. Then, they get hands-on experience in the Explore section before learning the why in the Explain section. In Elaborate, they apply what they have learned in various situations.
- In Structures and Functions of Plants, students view an image showing the phenomenon of cactus plants and roots. Teachers use a Think-Pair-Share questioning strategy to facilitate an understanding of how the structures of plants enable them to survive in their environment. Students' hand-outs include questions related to the phenomenon, such as, "How do the needle-sharp spines help the cactus survive in a desert environment?".
- The materials sequence instruction in a way that activates or builds prior knowledge before explicit teaching occurs, allowing for increasingly deeper conceptual understanding. For example, The Lesson Planning Example suggests completing the Accessing Prior Knowledge Activity before beginning Scope Phenomena. The Scopes then progress to Explore, where students engage in the content through hands-on activities. In Explain, students get more content information and opportunities to explain their thinking. For example, in the grade 4 Patterns in Space, students write a summary of the Explore activity. In the Elaborate section, students apply the learning to build sundials that use shadows to tell the hours of the day.
- Materials ensure students experience a phenomenon or problem before utilizing models as a tool for reasoning. Materials give students opportunities to use models to depict relationships and form explanations. For example, the Electric Currents lesson states, “In this activity, students will measure and record the change in temperatures of lamps to learn how electrical energy produces thermal energy.” Students work in groups to investigate the temperature of a lamp and note the types of energy, predict a temperature change and create a data table to draw a graph of their observations the force was in contact with or at a distance with the objects.
- The materials accurately present core concepts, recurring themes and concepts, and SEPs. Across lessons, units, and grade levels. Materials are free from scientific inaccuracies. Materials

present scientific content reflecting the most current and widely accepted explanations. For example, the Fossils Unit presents widely acceptable and accurate information. Students explore connections and applications of how fossils provide clues to the past by reading and annotating an authentic, real-world article from The Associated Press (AP), creating a response log, and answering reflection questions that assess comprehension.

Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.

- The materials include specific learning targets for each grade level. For example, the grade 4 materials for the Matter scope include Explore labs for temperature, mass, magnetism, relative density, and state of matter. These match the TEKS 4.6A, which states, "classify and describe matter using observable physical properties, including temperature, mass, magnetism, relative density (the ability to sink or float in water), and physical state (solid, liquid, gas)."
- Materials have specific statements that clearly state the level of competency for any given TEKS within each scope. For example, in the grade 4 Transfer of Energy scope, the materials list four learning objectives: "I can identify when a transfer of energy happens; I can give examples of the transfer of energy by objects in motion; I can tell how waves in water transfer energy; I can tell how sound transfers energy." The materials include a Progress Monitoring and Reflection log. Students track their data on TEKS mastery following the three checkpoints in each scope. Each scope contains a Stemscopedia with explanations, pictures, diagrams, response prompts, and a Connect It section to elicit student thinking.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 3.2

Materials provide educative components to support teachers' content and knowledge coherence.

1	Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices.	M
2	Materials contain explanations and examples of science concepts, including grade-level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS.	M
3	Materials explain the intent and purpose of the instructional design of the program.	M

Meets | Score 6/6

The materials meet the criteria for this indicator. Materials provide educative components to support teachers' content and knowledge coherence.

Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices. Materials contain explanations and examples of science concepts, including grade-level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS. Materials explain the intent and purpose of the instructional design of the program.

Evidence includes but is not limited to:

Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices.

- The Standards Planning Tab for each scope includes a Vertical Alignment of Science TEKs section with a Flashback to previous grade-level standards and a Fast-Forward to the next grade level's standards. There are cards under the Resources Tab and Instructional Supports for the SEPs for each grade level. Materials state that "Science is more than just knowing a specific set of knowledge. It is a set of processes that are used to determine, extend, and refine that knowledge to always better reflect the world around us...SEPs are standards that help students emulate behaviors that scientists engage in as they investigate and build models and theories about the natural world." The materials contain the following explanation about the RTCs: "Science has recurring themes that can be found throughout the content. These recurring themes provide an opportunity to make connections between concepts taught throughout the year." RTCs "help bridge disciplinary boundaries."
- Materials contain a Vertical Alignment of Science TEKS section in Slow Changes to Earth's Surface with a Flashback to grade 3, investigate and explain how soils such as sand and clay are formed by weathering of rock and by decomposition of plant and animal remains. A Flash-Forward to grade 5 model describes the processes that led to the formation of sedimentary rocks and fossil fuels. This section also includes connections to the College and Career Readiness

Standards, such as I.A.2. Use creativity and insight to recognize and describe patterns in natural phenomena.

- The materials include guiding documents that explain how content and concepts increase in depth and complexity across lessons and units within the grade level. Under the Resources tab and the Planning with Stemscopes tab, there is a section titled Grade Level Standards. The drop-down menu has a document titled "Texas Standards Snapshot" that contains a grid for all three of these sets of TEKS by grade level.

Materials contain explanations and examples of science concepts, including grade-level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS.

- Materials contain explanations and examples of science concepts. For example, the material includes a Vertical Alignment document that gives a broad overview to explain how energy and food chain concepts build from lower grades to higher grades.
- Materials provide a Teacher's Background Tab that contains information on each concept for teachers who may need to build their subject knowledge. For example, the grade 4 Food Webs Scope addresses TEKS 4.12A and 4.12B. The Teacher's Background information includes information on food chains, food webs, and the roles of producers, consumers, and decomposers.
- The materials identify common grade-level misconceptions students may have about science concepts. For example, all units provide teachers with a Pre-Assessment and Accessing Prior Knowledge tab, which includes an Identifying Misconceptions section. Materials identify possible student thinking and the intention and context of a given word or concept. Materials provide context information for some terms. In Resources, the materials provide a chart explaining the word Product, which shows Possible Student Thinking as "An item you buy at a store; the answer to a multiplication problem." Then, it defines Our Intention as "Something made from resources that we can use." Finally, the word is used In Context with the sentence, "Plastic is a product created from oil or natural gas."

Materials explain the intent and purpose of the instructional design of the program.

- The materials provide a purpose or rationale for the program's instructional design. Materials highlight key features of the instructional design. For example, materials provide a rationale for using the 5E Instructional Model plus Intervention and Acceleration for learning. The materials include STEMscopes Pedagogy, which states, "The 5E Instructional Model and the additional Intervention and Acceleration (+IA) within the resources provide teachers, additional opportunities to identify and close the gaps in student content knowledge that lead to achievement gains, as well as provide enrichment activities for other content areas linked to science content. Resources and strategies to meet the ELPS and RtI are integrated throughout all phases of the 5E model." The materials sequence lessons to incorporate student-centered, hands-on investigations to challenge current understanding and provide opportunities for the construction of students' knowledge.
- The materials provide a framework explaining the primary intent or goals of the program. Materials offer a Teacher's Guide that describes the program's instructional approaches and references the research-based strategies present in each unit. Each unit has a section for specific supports in the Unit Overview. For example, the materials include a STEMscopes Pedagogy page that explains "the goal of STEMscopes to provide an inquiry-based curriculum, which

incorporates the research-based, constructivist phases of the BSCS 5E Instructional Model (Bybee et al., 2006), the Key Findings from the National Research Council's report How People Learn (2000), the Texas Essential Knowledge and Skills (TEKS) (TEA, 2021), and an additional level of support for English Language Proficiency Standards (ELPS) (TEA, 2017)."

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 4.1

Materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

1	Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers.	M
2	Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts.	M
3	Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts.	M
4	Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts. Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts. Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

Evidence includes but is not limited to:

Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers.

- Materials provide multiple opportunities within each scope for students' meaningful sensemaking. Students read the Stemscopedia to understand the content and its application in Science Today articles. The Explore labs support students acting like scientists by completing and recording investigations. The Engineering Connection activities support students learning the Engineering Design Process and acting as engineers.
- For example, in Patterns in Space Scope, students start with a phenomenon video of the Earth rotating around the Sun, then participate in a group activity to discuss and make sense of the video using question prompts. Using cards and guiding questions, students will work together to identify and predict the observable pattern of the Moon's phases.
- The materials consistently provide learning activities that support students' meaningful sensemaking. The materials consistently provide learning activities that support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and

engineers. For example, in the Patterns in Space Scope, students read a grade-appropriate complex text about patterns of change in seasons, such as changes in temperature and length of daylight and the observable appearance of the Moon from Earth. They complete the before, during, and after reading strategies designed so that students ask, answer, and revise their questions. Students continue meaningful sensemaking during the Engineering Connection and Science Connection, where they apply their learning to create skits depicting how the Moon's rotation and orbit would affect the temperature, amount of daylight, and daily life in one location on the Moon. Students then build sundials that use shadows to tell the hours of the day.

Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts.

- The materials provide opportunities for students to engage in purposeful and targeted activities with grade-level appropriate scientific texts. For example, every scope includes a Stemscopedia under the Explain tab that explains the content TEKS for that unit. These documents include built-in questions to guide student thinking and help make connections. The scopes also include a Reading Science activity under the Elaborate tab that includes a story about a concept presented in the scope. For example, the Matter Scope includes a story titled "Look What We Found." The story includes questions to help guide student thinking. For example, the text asks students what it means to classify and, "Which line from the passage describes what matter is?" The scopes also have a *Science Today* article. These articles are real-world examples of science from around the world. They include Response Logs for student use during reading and questions to guide student thinking after reading.
- The opportunities for students to engage with scientific texts include activities, such as pre-reading and vocabulary. All grade levels and units provide guidance documents that instruct students to review and complete a before-reading activity that includes a preview of the text and images and an after-reading activity that includes discussions and summarizing. For example, in the Patterns in Space Scope before-reading activity, students skim over the text, fill in the definition continuum graphic organizer with words they do not recognize, and note what they think the word means. Once students complete the stop-and-jot questions embedded in the reading, they return to the before-reading activity to redefine the words they didn't recognize during reading. The Stemscopedia instructs teachers to remind the students that after reading each chunk, they are to take notes.
- For example, the materials include a Vocabulary in Context section to support student use and understanding of content vocabulary. In the Investigating Forces Scope, students choose different surface materials to observe friction. The lesson identifies the vocabulary terms force and friction. The materials state, "Students should be encouraged to use these terms in their ISNs and in their responses to questions."
- The materials provide multiple opportunities for students to engage with scientific texts to gather evidence and develop an understanding of concepts. For example, in the Reading Science portion of Patterns in Space scope, students use the visualize-draw-explain partner-read strategy and then answer questions to assess their understanding. In the Virtual Experience, "students will explore connections and applications of the patterns of change in the appearance of the Moon by reading and annotating an authentic, real-world article provided by The Associated Press, creating a response log, and answering reflection questions that assess comprehension."

Accelerate Learning STEMscopes Science TX Grade 4

Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts.

- The materials provide opportunities for students to communicate thinking on scientific concepts in written and graphic modes. For example, in the Explain section, the Interactive Science Notebook (ISN) section provides reflection opportunities for students to process the content they learned by doing the Explores and reading the Stemscopedia. This section explains the Input and Output strategy, giving prompts and techniques that facilitate communicative thinking. For example, Explore: Seasonal Changes is an activity where students complete a daily sunrise and sunset chart that includes one day from each month of a year and then use the data to create a line graph.
- For example, in the Physical Properties of Materials Scope, students brainstorm ideas for creating timers, develop plans, and draw a model of their design, then explain the outcome of the test.
- For example, in the Electric Currents Scopes, students measure the temperature of a lightbulb after designated times and create a data table of the temperatures.

Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

- The materials provide authentic student engagement and perseverance of concepts through productive struggle while acting as scientists and engineers. For example, in Patterns in Space Scope, students engage in the phenomena of day/night. A student handout includes the problem, criteria, and constraints for students to build sundials that use shadows to tell the hours of the day. The materials give teachers facilitation instructions and guiding questions to guide students, such as, "Which of these materials might you use to construct your sundial? "
- For example, in the Traits of Organisms Scope, students list their inherited and acquired traits. Then, they complete a Claim-Evidence-Reasoning Activity to construct and support an argument that explains whether the color of an American flamingo's feather is an inherited or acquired trait and what the specific feather colors of two different flamingos would likely be as adults.
- The materials support students as “practitioners” while they are figuring out (sensemaking) and productively struggling. In the Investigating Forces scope, students conduct a descriptive investigation to learn more about the forces of gravity, magnetism, and friction.
- For example, in the Elaborate Engineering Connection for the Grade 4 scope, Matter, students evaluate an existing design, then plan a redesign to present. They also evaluate peer redesigns for strengths and weaknesses. The redesign section asks, "How can you fix the problems found during testing? If no problems were found, how can you improve the solution? Use the space below to draw and label your redesigned solution.”
- The materials create *transfer* opportunities for students to take what they have learned and use it flexibly in new situations. Students take what they learned in the Explore and Explain and apply the knowledge in the Elaborate Engineering Connection and Science Connection.
- For example, in the Matter Scope, the phenomenon is a video of someone making a root beer float. The students answer a handout that asks, "What physical states did you see in the video? How do you know what state an object is in?" It also asks them to give two examples of physical properties in the video. The last question elicits student inquiry through phenomena when the

materials state, "What state of matter are the bubbles that formed when the root beer was poured? How do you know?"

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 5.1

Materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

1	Materials prompt students to use evidence to support their hypotheses and claims.	M
2	Materials include embedded opportunities to develop and utilize scientific vocabulary in context.	M
3	Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.	M
4	Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations of phenomena and/or solutions to problems using evidence acquired from learning experiences.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

Materials prompt students to use evidence to support their hypotheses and claims. Materials include embedded opportunities to develop and utilize scientific vocabulary in context. Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations of phenomena and/or solutions to problems using evidence acquired from learning experiences.

Evidence includes but is not limited to:

Materials prompt students to use evidence to support their hypotheses and claims.

- The materials provide opportunities for students to develop how to use evidence to support their hypotheses and claims. For example, in the Patterns in Space Scope, the materials include an embedded CER directly connected to the explore activity. The materials provide a handout for students and teacher guidance. The handout includes pictures and a scenario that connects to the Explore activity. The materials teacher guidance for struggling students states, "If students struggle with how to begin, remind them of the following points: For the claim section, students should each write a single sentence that highlights which of the moon phases is missing from the table of the lunar cycle. For the evidence section, students should cite data or observations that can be pulled directly from the scenario and external data. For the reasoning section, students should make connections between the scenario and the scientific knowledge they have gained about identifying sequences and predicting patterns of change in the observable appearance of the Moon from Earth throughout the scope activities."
- For example, in Transfer of Energy, students work in stations to investigate how energy transfers in objects in motion, waves in water, and sound and complete the embedded CER for the lesson. Materials provide teacher guidance for helping students. Tips include how students should complete each SER section.

- The materials specifically prompt students to use evidence when supporting their hypotheses and claims. For example, in the Matter CER activity, students complete a table of external data about the water temperatures from the lab. Students then answer the prompt, "Write a scientific explanation that describes how adding heat affects the temperature of a substance." There are clearly defined sections for students to write their Claim, Evidence, and Reasoning.
- For example, in Investigating Forces, students use a virtual simulation to push a box over different surface materials and record the force needed in newtons. Then, students use the data table to answer the prompt, “Write a scientific explanation that states which of the three surfaces would be the best covering for a ramp to load moving boxes onto a truck.” The materials provide teachers with a rubric with indicators of the evidence included in the student’s scientific explanation.

Materials include embedded opportunities to develop and utilize scientific vocabulary in context.

- The materials include opportunities to develop and use vocabulary after having a concrete or firsthand experience to which they can contextualize new terms. Each scope is constructed where students are introduced to vocabulary as they explore the concept and begin using the new vocabulary in the explain section. For example, in Weather Versus Climate, materials introduce vocabulary as students work in groups, finding information from photos and descriptions to help them differentiate between *weather* and *climate*. Students use the vocabulary in the explain ISN activity, identifying statements as describing weather or climate.
- For example, in the Electric Currents Stemscopedia, students read about closed paths that cause electrical and light energy. Students then build a one-circuit arrangement and write the steps they used to complete the circuit. The teacher directs students to complete a two-minute quick write with the following prompt, “A student is provided the following supplies: ten electrical wires, three mini light bulbs, three D-cell batteries, and three switches. How should they arrange some or all of the supplies to make at least two mini light bulbs turn on? Explain the flow of electricity in this circuit.” As students perform the hands-on activities and complete the quick-write, they begin to use the vocabulary in context
- The materials present scientific vocabulary using multiple representations. For example, in the Changing Earth's Landforms Scope, the materials provide three vocabulary-specific activities to engage students. In the first activity, students click buttons to scroll through the picture vocabulary and review the definitions. The second activity utilizes an interactive word wall, where students can interact with the vocabulary terms on a class bulletin board to comprehend and recall their meaning. In the third activity, students play Graffiti Cards. They create unique drawings and descriptors to present key terms.
- The materials embed application questions about vocabulary within the components of the Elaborate tab. For example, in Matter, the Science Connection activity tells students to include information about "What physical properties the slime has." In addition, a virtual experience under this tab allows students to explore the content using vocabulary words, including application questions. The small group Intervention activity lesson includes act-it-out cards for students to practice guessing vocabulary words.
- The materials provide opportunities for students to apply scientific vocabulary within context. Explore activities introduce content vocabulary in the context of the associated hands-on activity. As students perform the hands-on activities and complete the handouts, they begin to use the vocabulary in context before being formally exposed to definitions in the Explain section of each scope. For example, in Physical Properties of Materials, an ISN page asks students to

"summarize what they have learned about the properties of matter by creating a sample test problem."

- Each scope begins with Explore activities, including Student Interactive Science Notebook pages that utilize pertinent vocabulary. For example, in Matter, an ISN page asks students to "create a concept map that describes the properties of matter you investigated in today's activity."

Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.

- The materials provide opportunities for students to develop how to practice argumentation and discourse. For example, The Accessing Prior Knowledge Agree or Disagree activity introduces students to constructing an argument using a handout. Students evaluate whether they agree or disagree with statements on the handout, then explain their reasoning behind their decision. For example, in the Matter Scope, students evaluate the design for an apple bobbing apparatus. After presenting their strategy to the class, they use the embedded table to note the strengths and weaknesses of the other presentations. Then, the teacher leads a class discussion of the redesign solutions and their strengths and weaknesses.
- For instance, in Transfer of Energy, students construct and support an argument to show the best insulator of thermal energy by using data from a scenario investigation to claim the best insulator for ice. Students include reasons and reference provided data as evidence.
- The materials integrate argumentation and discourse within stages of the learning cycle. For example, In Slow Changes to Earth's Surface, students design safe and effective solutions to keep sand from blowing out of a neighborhood sandbox. Students present their designs and critique each other's designs using the rubric.
- For example, students compare the motion of a bicycle with the flow of energy in a circuit. The teacher creates anchor charts with the questions from the student handout, and students work in groups to respond. Students rotate to charts and respond to other group responses using the sentence stems of "Agree" or "We disagree because…."

Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations of phenomena and/or solutions to problems using evidence acquired from learning experiences.

- The materials provide instruction for how to construct and present a verbal or written argument to problems using evidence acquired from learning experiences. For example, in Slow Changes to Earth's Surface, students complete an investigation that includes models of how water, wind, and ice shape the land through weathering, erosion, and deposition. Students use the data collected in the investigation to support the claim in their scientific explanation that explains how water can change the Earth's surface.
- For example, in Matter, the Engage phenomenon is a video showing a root beer float being made. The teacher's instructions state students should independently write down their responses to the questions on the student handout. Questions include, "What physical states did you see in the video? How do you know what state an object is in?" After students answer the questions, students discuss them as a class.
- The materials provide criteria for developmentally appropriate arguments to explain a phenomenon or defend a solution to problems using evidence acquired from learning

experiences. For example, in Matter, there is an embedded CER after the Explore lab "Mass, Temperature, and Magnetism." Students complete a table of external data about the water temperatures from the lab. Then, the prompt says, "Write a scientific explanation that describes how adding heat affects the temperature of a substance." There are clearly defined sections for students to write their Claim, Evidence, and Reasoning.

- For example, in grade 4, students choose surface materials to observe how friction acts on different surfaces in a virtual simulation. Students collect data by recording how much force is needed to push the box over the different surfaces. Students answer the prompt in CER format, “Write a scientific explanation that states which of the three surfaces would be the best covering for a ramp to load moving boxes onto a truck.”

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 5.2

Materials provide teacher guidance to support student reasoning and communication skills.

1	Materials guide the teacher in anticipating student responses and using questioning to deepen student thinking.	M
2	Materials include teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context.	M
3	Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims.	M
4	Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.	M

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials provide teacher guidance to support student reasoning and communication skills.

Materials guide the teacher in anticipating student responses and using questioning to deepen student thinking. Materials include teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context. Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims. Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.

Evidence includes but is not limited to:

Materials guide the teacher in anticipating student responses and using questioning to deepen student thinking.

- The materials provide teachers with possible student responses to questions and tasks.
    - For example, throughout all units in the Explore Activity, materials provide a list of questions with possible student responses to gauge current student knowledge and identify any potential misconceptions.
    - For example, the Food Webs Scope provides questions and possible responses such as, "What are some differences between plants and animals? Animals are mobile. They can hunt for food, and they can make sounds. Plants are stationary. They cannot walk or fly, and they cannot eat food for energy."
    - For example, The Sun and the Water Cycle Scope Assessment has a short constructed response section that asks students to "Describe how the Sun is an important part of any step in the water cycle." The teacher answer key provides a possible student response, such as "Answers may vary. A possible student response could include the following: The Sun is the most important object in the water cycle. Without energy from the Sun to heat water on Earth, water would not be able to evaporate into the atmosphere and condense to form clouds. With no clouds, we would have no

precipitation. No new water would enter the ground as groundwater, and no water would return to rivers, lakes, and oceans as runoff. Much of the water on Earth would simply stay where it is. Accept other reasonable answers.."
    - For example, in a unit on electric currents, materials list questions such as “Can electrical energy produce other types of energy?” with the possible response that states, “I think electrical energy produces light energy and thermal energy.” Materials continue with the question, “How can you use a data table to create a graph?” The possible student response states, “I can use a data table to create a bar graph by labeling the vertical y-axis with one piece of information and labeling the horizontal x-axis with the other piece of information.”
- The materials provide general support for teachers to deepen student thinking through questioning.
    - For example, materials provide a section in The Teacher's Guide that gives general guidelines on deepening student thinking during a class discussion, such as Instructional Supports that include Scientific and Engineering Practices resource cards that help teachers incorporate the SEPs in the classroom. The materials contain a Learning Support Section, including activities paired with content to engage advanced learners' strategies, including a 5 Question Quiz, Partner and Ponder, and Unanswered Questions. The materials include Literacy Resources, including reading, activities, and vocabulary strategies. These activities encourage teachers to engage students in partner, group, and class discussions.
    - For example, scopes include Think-Pair-Share activities to have students build on their thinking using peer responses. Materials state that discussions need to be grounded in facts, and teachers ensure student responses on handouts for Claim-Evidence-Reasoning activities are based on text or investigation evidence.

Materials include teacher guidance on how to scaffold and support students’ development and use of scientific vocabulary in context.

- The materials provide embedded support for the teacher in introducing and scaffolding students’ development of scientific vocabulary.
    - For example, materials provide teachers with a standards planning page that previews the vocabulary used in the unit. Materials state that "the terms below and their definitions can be found in Picture Vocabulary and are embedded in context throughout the scope."
    - For example, the Investigating Forces Scope identifies the words *force, friction, object, gravity, magnetism, pattern,* and *distance*. Materials provide picture vocabulary slides with a definition for each term.
    - For example, the Matter scope uses Picture Vocabulary Slides, an Interactive Word Wall, and the vocabulary game, Graffiti Cards. Teachers and students use each scope’s picture vocabulary slide deck to review the words under the Explain tab. The materials instruct teachers to post the picture vocabulary slides in two columns for the Interactive Word Wall. "In column 1, post vocabulary words and pictures; in column 2, post vocabulary definitions. Put a pushpin next to each word and each definition. Hang a piece of yarn or ribbon from each pushpin in column 1. (Each piece of yarn should be long enough to reach every pin in the next column.)” Students practice matching the terms to the

definitions by linking them with the yarn, or teachers can purposefully make incorrect connections and then challenge students to find and correct the mistakes.

- The materials guide the teacher on how to support students' use of scientific vocabulary in context.
    - For example, the Explain picture vocabulary section alerts teachers of opportunities for students to use scientific vocabulary in context. This section guides the teacher to the Vocabulary in Context section of the Explore and instructs teachers to "encourage students to practice using these terms in context during subsequent scope activities."
    - For example, in the Traits of Organisms Unit, teachers introduce the vocabulary words *physical characteristics, inherited Traits, traits acquired,* and *organisms*. Materials direct the teacher to encourage students to use these terms in their responses in each activity.
    - For example, students complete a data table with the definition and example of inherited traits and learned behavior, followed by a summary of knowledge gained from this activity. Answers include that all offspring plants receive some physical traits from their parent plants. They also acquire certain physical traits throughout their lifetimes that depend on what happens to them in their environments.
    - For example, the Transfer of Energy Scope identifies the vocabulary words as *rest, appearance, contact, direction, matter, object*, and *wave*. Materials provide a chart for vocabulary words that identifies the word, possible student thinking, intention, and the word in context.

Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims.

- The materials provide teacher support to prepare for student discourse.
    - For example, materials include teacher preparation by setting up and reinforcing a class culture in which students listen to and evaluate whether they agree with one another's ideas. Materials include steps for establishing norms for class discussions. In the Types of Energy scope, students work in groups to sort picture cards into types of energy. The lesson states, "When all groups are done sorting, discuss the activity as a class. If there is any disagreement about where an object should be sorted, allow groups to defend their reasoning to each other."
    - For example, students write a demonstrative speech in the Matter Scope. The teacher's instructions for the activity have a bullet that says, "Remind students that, while other students are presenting, they should be good audience members and perform active listening and polite applause, and they should ask appropriate questions after the speeches if time permits." The teacher can use the included self-assessment and rubric to provide feedback.
- The materials provide teacher questions for supporting student discourse and using evidence in constructing written and verbal claims.
    - For example, in the Slow Changes to Earth's Surface Explore activity, the teacher debriefs students "using this questioning strategy: Gallery Discussion." The materials supply the questions and step-by-step instructions for the Gallery Discussion strategy.
- The materials provide guidance that teachers can use to provide feedback to students while engaging in discourse.
    - For example, during the Patterns in Space activity, teachers are guided to ask, "What patterns do you observe in the data you collected throughout the year? " Teachers then

ask students what season has the warmest temperature in all cities observed each month while they are working through the activity.

Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.

- The materials provide teacher support and guidance to engage students' thinking in various modes of communication throughout the year.
    - For example, Materials provide feedback tips and examples teachers can use to support students throughout the learning cycle. Each scope Elaborate Engineering Connection has guiding questions teachers use when students get stuck.
    - For example, in Slow Changes to Earth's Surface, the materials provide teachers with guiding questions such as what Students need "to take into consideration regarding the wind affecting the sand in the sandbox. Answers may vary. Possible student responses could include the following: the direction the wind blows from, the direction the wind blows the sand, and how hard the wind has to blow to move the sand in the sandbox." The materials also provide questions about the structures blocking the wind and possible student answers. However, some scopes, such as Matter, Mixtures, and Resources, are missing these supports for the grade 4 Engineering Connection.
- The materials provide teacher support for facilitating the sharing of students' finding solutions. Materials provide feedback tips and examples teachers can use to support students throughout the learning cycle. Materials provide an answer key or sample response for verbal and written questions and rubrics for scoring.
    - For example, the materials provide an "Engineering Connection" flowchart defining all the steps in the engineering design process and a rubric that identifies the quality of redesigned solutions, critique, creativity and innovation, and adaptability and resilience.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 6.1

Materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.

1	Materials include a range of diagnostic, formative, and summative assessments to assess student learning in various formats.	M
2	Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment.	M
3	Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts.	M
4	Materials include assessments that require students to apply knowledge and skills to novel contexts.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.

Materials include a range of diagnostic, formative, and summative assessments to assess student learning in a variety of formats. Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment. Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. Materials include assessments that require students to apply knowledge and skills to novel contexts.

Evidence includes but is not limited to:

Materials include a range of diagnostic, formative, and summative assessments to assess student learning in various formats.

- Materials include diagnostic assessments for measuring student learning and identifying learning gains in various formats. For example, each grade level contains a multiple-choice diagnostic Beginning-of-Year (BOY) assessment and an End-of-Year (EOY) assessment available under the Resources Tab. The materials state, "Beginning-of-Year and End-of-Year assessments are designed to measure learning based on the standards addressed in that grade level and modeled after the state assessment for that grade level/band."
- Materials include formative assessments in a variety of formats to measure student learning and determine the next steps for instruction. For example, in the Matter Scope, the first lab suggests a Parking Lot strategy, the second recommends an I Wonder strategy, and the virtual lab proposes using Colored Cards to debrief students. Each Evaluate tab has a Claims-Evidence-Reasoning (CER) included, which requires a written response and using information learned to support a claim. The Accelerate tab has a choice menu of nine project-based activities that can be used in a portfolio. Materials include multiple opportunities for class discussion and peer-to-peer discussion using provided prompts.
- Scopes include a short, multiple-choice diagnostic pre-assessment and a mid-unit Pulse Check "designed to uncover student misconceptions and provide a measurement of student learning

to act as a baseline. It should not be taken for a grade." For example, in grade 4, at the beginning of the Conductors and Insulators Scope, the students are being assessed on their current knowledge by listening to prompts by the teacher about conductors and insulators and deciding whether or not the statement is fact or fiction. Students use a Progress Monitoring and Reflection Log to rank their understanding before being introduced to the content. During the Evaluate section of the scope, the materials direct the teachers to review the pre-assessment questions and clarify any misconceptions students still have.

- For example, the Grade 4 Food Webs Progress Monitoring Check sheet asks the students to indicate if they can draw how producers make their food using sunlight, water, and carbon dioxide.
- Materials include summative assessments in a variety of formats. The materials provide a Scope Assessment at the end of every unit after students complete the activities in the Engage, Explore, Explain, and Elaborate sections that include multiple choice questions.
- For example, the Scope Assessment for Matter question types includes five multiple-choice, one multi-select, one drag-and-drop, one multi-part, and one open-ended calculation for reading the temperature and ends with a constructed response. The constructed response provides students with a chart describing the physical properties of six objects. Students decide which two physical properties from the chart would be most helpful in distinguishing which type of matter is which and then explain their reasoning. Materials also contain a Progress Monitoring chart that students and teachers can use to track their progress on assessments through the scope.
- For example, Patterns in Space Scope has a unit CER where "students will construct and support an argument that identifies which season would be best for a family to take their trip." This activity includes a rubric and answer key.
- Materials include a variety of informal assessments that give teachers feedback on student learning at the moment so that they can modify instructional approaches. For example, the STEMscopedia located in the explain section has several opportunities to informally assess students' learning through embedded strategies with questions for teachers to ask students after completing each Explore lab, including the virtual lab.
- For example, in Explore: Modeling the Effects of Water, Wind, and Ice on Land input strategy, students cut the dashed lines on the Three-Tab Folded Graphic Organizer to create three flaps. They fold each flap to the bold centerline. Students title the outside of each flap: water, wind, and ice. They then draw what each landform looked like before and after changing it with water, wind, or ice inside the flaps. For the Output, students use the Define and Example strategy. Students define each new vocabulary term from the Explore activity. They fill in the corresponding boxes with real-world examples of the terms using pictures and diagrams as appropriate. The materials describe the ISN activities as "reflection opportunities for students to process the content they learned by doing the Explores and reading the STEMscopedia.

Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment.

- The materials assess all student expectations by grade level, as outlined in the TEKS. Materials assess all student expectations, and answer keys clearly label the relevant expectations for each assessment item and are dual-coded. For example, each scope includes a tab called Standards Planning. This tab has a standards matrix that shows each standard in the scope (including RTCs and SEPs) and lists all the scope components that use the standard.

- The materials include detailed TEKS-based lesson plans that outline how the materials can be used to teach specific concepts and skills, address specific students' expectations, and provide guidance on assessing student learning. The materials indicate which student expectations are assessed. Materials provide the TEKS correlation for each assessment item and the answer keys for every assessment.

Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts.

- The materials include assessments that require students to integrate scientific knowledge and science and engineering practices with recurrent themes appropriate to the student expectation being assessed. For example, the Food Webs unit provides a performance assessment in which students focus on the last two steps of the Engineering Design Process. Students will evaluate a design for a greenhouse and redesign it if needed to fit the listed constraints. Materials prompt the teacher to remind students to include scientific ideas used to solve the defined problem, lead a class discussion about their solutions' strengths and weaknesses, and evaluate the performance using the Engineering Design Process Student Rubric in materials.
- For example, materials have a Science Connection and Engineering Connection within each scope. In Electric Currents, students build and test for their desks to light up and stay lit when students turn them on to indicate they have questions for their teacher. The materials provide a scenario of a teacher wanting to give an alternative to students raising their hands with a question so they can continue to work. Students plan, build, and test their investigations. The teacher evaluates each student's performance using an "Engineering Design Process Student Rubric.

Materials include assessments that require students to apply knowledge and skills to novel contexts.

- Materials include assessments that require students to apply knowledge and skills to novel contexts. In the grade 4 scope Matter, the Science Connection activity is to write a demonstrative speech answering the question, "How can you make slime with good physical properties?" Students must include how to make the slime with specific ingredients, what physical properties the slime has, and why those physical properties are desirable for slime.
- For example, in the Structures and Functions of Plants Explore, students explore and explain how the structures and functions of plants, such as waxy leaves and deep roots, enable them to survive in their environment. Students apply their knowledge and skills to complete a performance task in a new context. Students must create creative commercials for the community about a new product named "Native Plant Pack." Students describe the structures and functions of two plants included in the pack and tell how these characteristics help them to survive in their environment.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 6.2

Materials include guidance that explains how to analyze and respond to data from assessment tools.

1	Materials include information and/or resources that guide evaluating student responses.	M
2	Materials support teachers' analysis of assessment data with guidance and direction to respond to individual student's needs in all areas of science based on measures of student progress appropriate for the developmental level.	M
3	Assessment tools yield relevant information for teachers when planning instruction, intervention, and extension.	M
4	Materials provide resources and teacher guidance on leveraging different activities to respond to student data.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include guidance that explains how to analyze and respond to data from assessment tools.

Materials include information and/or resources that guide evaluating student responses. Materials support teachers' analysis of assessment data with guidance and direction to respond to individual student's needs in all areas of science based on measures of student progress appropriate for the developmental level. Assessment tools yield relevant information for teachers when planning instruction, intervention, and extension. Materials provide resources and teacher guidance on leveraging different activities to respond to student data.

Evidence includes but is not limited to:

Materials include information and/or resources that guide evaluating student responses.

- Materials include information that guides teachers in evaluating student responses. For example, answer keys for formal summative scope assessments, the Pulse Check and Scope Assessment, include the correct answer and explanations for incorrect answers. In addition, each scope has a resource for Progress Monitoring and Reflection under the Engage tab, where students rate their understanding of the content broken down into "I Can" statements. For example, grade 4 Food Webs progress monitoring guidance includes, "I can draw how producers make their food using sunlight, water, and carbon dioxide. I can explain the process of photosynthesis. I can show the flow of energy through a food web." The materials prompt the teacher to have students gauge their understanding throughout the unit and to address misconceptions during specific times in the lesson. The unit also includes an assessment in which students write informative speeches about which of the given scenarios would mostly impact the food web in their ecosystem. Students follow a checklist of goals they must achieve, and the teacher follows a rubric and scoring guide for evaluating student performance.

- The Engineering Connection activity in each scope contains a checklist of criteria and constraints and a rubric for scoring, and the CER for each scope includes an answer key with sample student responses and a rubric for scoring. The materials state, "The students' performances on this CER formative assessment affect what they will do next. Students who need more support can work with the teacher in small groups using the elements in the Intervention section before moving to the Scope Assessment. Other students should work on Elaborate or Acceleration elements."
- The student Interactive Science Notebook pages that accompany each Explore lab and the pages that accompany every Stemscopedia in each scope include an answer key that contains a sample student response. The Science Connection Elaborate activity for each scope has a self-evaluation and a rubric for scoring. The remaining Elaborate activities (Science Today, Reading Science, and Virtual Experience) contain an answer key with a sample student response.
- Materials include resources that guide teachers in evaluating student responses. For example, materials provide several rubrics teachers can use to evaluate whether students are confident, somewhat confident, or not confident in each component of the learning objectives. When students are required to use science or SEP reasoning, the materials include specialized rubrics aligned to the given task. For example, The Progress Monitoring and Reflection Rubric is included in all units and are student-driven responses that teachers can use to evaluate students' understanding of the topic before, during, and after the lesson.
- The materials include a Science Connection section and an Engineering Connection section, including specialized rubrics for the given assessments. For example, Patterns in Space Scope Assessment has a rubric with a 0 to 10 scale. The rubric states that to earn ten points, "The student's response correctly described what the model represents and the evidence that supports their thinking." A student earns zero points if "the student's response incorrectly described what the model represents and incorrectly described the evidence that supports their thinking. OR The student's response is blank, irrelevant, or too brief to evaluate." For example, the Electric Currents scope assessment asks students to describe a terrarium with a regulated day-night cycle for a lizard. The materials provide a "Constructed Response Rubric" with scores, descriptions, and a sample student response.

Materials support teachers' analysis of assessment data with guidance and direction to respond to individual student's needs in all areas of science based on measures of student progress appropriate for the developmental level.

- The materials provide guidance documents and resources to support teachers' analysis of assessment data. For example, the material guides the teachers to click each standard on the reports page and see the activities in the scope associated with that standard. The teacher will then choose the appropriate activity to support students who may need intervention. "Teachers reference the differentiation pathways available in Resources to decide on what activities would be appropriate." Additionally, the materials include a grading system and data collection tool for use with assessments.
- The materials give teachers an answer key/rubric and guidance on what information to gather and how to use the information. For example, the grade 4 Scope Assessment: Transfer of Energy provides an answer key and rubric, and the teacher guidance states, "As an optional part of the Evaluate, you may go over each question of the Scope Assessment with students to clarify any misconceptions that remain." Additionally, the "Gradebook view shows student performance on an assignment or assessment. This allows a teacher to see student performance by assignment or by question."

- Materials provide rubrics and guidance to analyze data and respond to students' needs on CER tasks. For example, the grade 4 Transfer of Energy Energy in Collisions CER provides a rubric, and the teacher guidance states, "The students' performances on this CER formative assessment affect what they will do next. Students who need more support can work with the teacher in small groups using the elements in the Intervention section before moving to the Scope Assessment. Other students should work on Elaborate or Acceleration elements."

Assessment tools yield relevant information for teachers when planning instruction, intervention, and extension.

- The information gathered from the assessment tools helps teachers when planning core science instruction. Tools included in the materials to help teachers plan instruction, intervention, and extension include a Differentiated Pathways graphic that is "designed to support students based on performance level and identified need to intervention;" a Tiered Intervention Strategies page that "shows the suggested pathway to help support all students in the science classroom;" and a student data sheet to track "informal observations based on student learning during the various lessons and activities."
- The information gathered from the assessment tools helps teachers plan differentiated instruction. For example, the Claim-Evidence-Reasoning evaluation guidance for teachers states, "The students' performances on this CER formative assessment affect what they will do next. Students who need more support can work with the teacher in small groups using the elements in the Intervention section before moving to the Scope Assessment. Other students should work on Elaborate or Acceleration elements."
- Materials include data-management tools that allow teachers to organize student data to differentiate science instruction and easily group students according to assessment results. For example, the student data sheet has several suggestions for teacher use, including "During lesson discussions, use the datasheet to note students who are struggling with certain key concepts. During Explore activities, use the datasheet when asking the guiding questions to note student understanding. After Evaluate activities, the Data Sheet can also be used to mark students' levels of mastery for each Key Concept as novice, gaining proficiency, or expert." The datasheet teacher guidance includes descriptions of novice, gaining proficiency, and expert. The mastery is decided by the "Level of Mastery Key: Novice (N): A novice science student has a basic awareness of some scientific concepts, but requires significant guidance to understand and apply them. Gaining proficiency (G): A student gaining proficiency in science demonstrates increased understanding and ability to engage with scientific principles independently, and starts making connections between different concepts. Expert (E): An expert science student has fully grasped the curriculum, can articulate key principles, solve problems independently, make complex connections, and displays curiosity beyond the standard material."

Materials provide various resources and teacher guidance on leveraging different activities to respond to student data.

- Materials provide student resources for teachers to respond to performance data. For example, the materials provide a Planning with Stemscopes tab with a drop-down for Differentiation Pathways graphics that specify which activities in the program to assign students when they have difficulty within the scope. The Planning with Stemscopes tab lists suggested activities to assign to all students that fall into three performance levels: Approaches, Meets, and Masters.

Accelerate Learning STEMscopes Science TX Grade 4

- Each scope contains one small-group intervention activity. Each activity breaks down into guided and active practice sections. There is also an included Concept Attainment quiz to administer afterward. For example, in grade 4, Slow Changes to Earth's Surface Small-Group Intervention Guided Practice, students review the slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice through a small-group activity led by the classroom teacher. Then, in the Active Practice, students play a game of Vocabulary Dominoes to practice scope concepts and vocabulary before completing the concept attainment quiz.
- Materials provide teacher guidance for responding to student data. For example, in the above game, Tier 1 guides teachers to "Allow classmates within the group to discuss key information to look for in the definition that matches the term on the domino played." Tier 2 guides teachers to "Allow the student to use reference materials to determine the definition that matches the term." Tier 3 guides teachers to "Have a classmate read aloud to the student the term on the domino played and the definitions distributed to the student." For example, each scope Pre-Assessment and Accessing Prior Knowledge assessments includes assessment guidance for teachers stating, "It is not recommended to take grades from either part of this activity. Teachers should use students' answers to drive their classroom instruction. Identify individual students that need focused support through Explores with Differentiation Tiered Support Activities at the bottom of each explore page. Students needing extra support can also be assigned Picture Vocabulary and Small Group Intervention elements to build their understanding of the content.
- Students who show mastery at the Pre Assessment and Accessing Prior Knowledge activities can be given STEAM Choice Boards as an acceleration to keep them engaged with the content as the class completes the lesson cycle."

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 6.3

Assessments are clear and easy to understand.

1	Assessments contain scientifically accurate items, avoid bias, and are error-free.	M
2	Assessment tools use clear pictures and graphics that are developmentally appropriate.	M
3	Materials provide guidance to ensure consistent and accurate administration of assessment tools.	M
4	Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned with learning goals.	M

Meet | Score 2/2

The materials meet the criteria for this indicator. Assessments are clear and easy to understand.

Assessments contain scientifically accurate items, avoid bias, and are error-free. Assessment tools use clear pictures and graphics that are developmentally appropriate. Materials provide guidance to ensure consistent and accurate administration of assessment tools. Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned with learning goals.

Evidence includes but is not limited to:

Assessments contain scientifically accurate items, avoid bias, and are error-free.

- Assessments contain items for the grade level that are scientifically accurate. Formative and summative evaluations include assessment items that align with taught objectives and present grade-level content and concepts, science and engineering practices, and recurring themes and concepts in a scientifically accurate way. For example, in grade 4, a summative assessment at the end of the Transfer of Energy Scope asks students to organize a table that lists transfer of energy examples under their appropriate column, “Sound, Object in Motion, or Waves in Water.” Materials accurately describe energy transfer within a scenario– "When a ball is kicked into another ball, it transfers energy to the second ball and causes it to roll." The Patterns in Space Scope assessment also contains tables describing the Moon phases accurately. Similarly, the Slow Changes to Earth's Surface Scope Assessment uses correct scientific terminology such as *sediment*, *weathering*, *erosion*, and *deposition*.
- Assessments contain items for the grade level or course that avoid bias. Formative and summative evaluations include assessment items that present content and examples fairly and impartially. The test will not impact student performance based on factors such as a student’s home language, place of origin, gender, or race and ethnicity. In grade 4, the Investigating Forces summative assessment includes a graphic of children at a playground that includes both boys and girls. For example, in grade 4 Life Science Scope, the Summative CER Evaluation scenarios include male and female names. The answers to the scenarios are general and do not indicate biases. The Weather versus Climate Assessment items include various geographic areas, such as the Pacific Northwest, Tropical regions, Portland, Oregon, Lubbock, Texas, Billings, Montana, Houston, Texas, and Key West, Florida.
- Throughout the materials, assessments contain error-free items for the grade level and course.

Accelerate Learning STEMscopes Science TX Grade 4

Assessment tools use clear pictures and graphics that are developmentally appropriate.

- Assessment tools use clear pictures and graphics. For example, in the grade 4 Scope Assessment: The Sun and the Water Cycle, items contain diagrams with arrows and labeling that display the water cycle process to aid students' understanding. Assessment items include diagrams of food webs that clearly show each organism with its name and easy-to-follow arrows. In the grade 4 scope for Matter, the pre-assessment has one line drawing of two thermometers asking, "How much did the temperature change?" The thermometers clearly show distinct temperatures.
- Assessments contain pictures and graphics that are developmentally appropriate. For example, the grade 4 Food Webs Assessment includes simple images of food webs with arrows that clearly show energy flow through food webs. The Matter Scope Assessment has multiple tables and several line drawings. The first is of two groups of objects that are easily identifiable by a grade 4 student– a penny, marble, and paperclip in one group and a popsicle stick, rubber eraser, and cork in the other group. The assessment item prompts, "What property did the students classify the objects by?"

Materials provide guidance to ensure consistent and accurate administration of assessment tools.

- Materials provide guidance for teachers to consistently and accurately administer assessment tools. For example, the instructions for the Grade 4 Pre-Assessment in the scope Matter says, "Tell the students they have a specific amount of time to complete the Pre-Assessment. After time has elapsed, collect the Pre-Assessment from each student. Mark on each Pre-Assessment whether the student chose the correct answer." The materials do not state how much time should be allotted for the assessment.
- For the Pulse Check, under the Explain tab, instructions say, "If not assigning digitally, plan on projecting the questions and have a way for students to answer. Select a strategy to elicit responses from all students in your class. Sample strategies can include the following options: Color cards, Hand signals, and Whiteboards." The instructions for the Scope Assessment, under the Evaluate tab, mirror those for the Pre-Assessment.
- The materials guide the accurate administration of some assessment tools. For each scope, materials include a CER assessment with a teacher script. The script gives step-by-step directions for how to administer the assessment. For example, in the 4th grade Weather vs. Climate Scope, the CER Activity section materials direct teachers to read the scenario aloud about climate and weather in Dallas, Texas, and Albany, New York. Teachers instruct students to write a scientific explanation that explains the difference between weather and climate and how this should help Jordan feel better about his move to Dallas.
- Teacher guidance for students who struggle to begin includes reminders of how to create a CER based on the scenario. Materials state that based on assessment performance, students who need more support can work with the teacher in small groups using the elements in the Intervention section before moving to the Scope Assessment, and other students should work on Elaborate or Acceleration elements. For example, the teacher section of the grade 4 Electric Current scope assessment states, "Give each student a copy of the Scope Assessment. Inform the students that they have a certain amount of time to complete the Scope Assessment."
- The materials include information that supports the teacher's understanding of assessment tools, such as answer keys and general guidelines for scoring. Materials provide the following guidance: "Mark on each handout whether the student chose the correct answer. As an optional

part of the Evaluate, you may go over each question of the Scope Assessment with students to clarify any misconceptions that remain."

Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned with learning goals.

- Materials offer tips for tiered strategies for written response questions. For example, on the Patterns in Space Scope Assessment, materials suggest that students create a glossary of keywords being used in the visuals and questions (i.e., x-axis, y-axis, trend, range, key, legend, variables, units, increments, data, etc.) the day before the test. Materials further suggest that the teacher review the glossary with the student and allow the student to refer to the glossary during the test. Such accommodations allow students receiving Tier 3 interventions to demonstrate mastery of knowledge and skills aligned to learning goals.
- Materials offer multiple-choice tiered strategies for accommodating scope assessments according to three tiers of support. For example, teacher guidance for Tier 3 supports on the grade 4 Transfer of Energy Scope Assessment strategies states, “Allow the student to have the test read aloud. Allow the student to answer orally and have someone scribe their answers.” Teacher guidance for Tier 2 accommodations on the same assessment states, “Provide a visual reminder to guide the test. Note the time remaining. If necessary, prompt the student to skip a question or section and return to answer it before time runs out.”

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 7.1

Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

1	Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade-level mastery.	M
2	Materials provide enrichment activities for all levels of learners.	M
3	Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade-level mastery. Materials provide enrichment activities for all levels of learners. Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.

Evidence includes but is not limited to:

Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade-level mastery.

- The materials include teacher guidance for scaffolding instruction and differentiating activities for students who have not yet achieved mastery. Teacher guidance materials include a Tiered Intervention Strategies page that identifies two "suggested pathways to help support all students in the science classroom" displayed in graphic organizers. These pathways connect the Tier levels to the material components that support the students at their level. For example, materials suggest using the Explain Interactive Notebook for Tier I, the Explain Picture Vocabulary for Tier II, and Intervention Guided Practice for Tier III.
- For example, in the Matter scope, for the Accessing Prior Knowledge Activity "Sliding Scale," the Tier 1 strategy is "Place the Sliding Scale wall signs on the opposite walls of the classroom." The Tier 2 strategy says, "Instruct all students to hold up 1 to 10 fingers (corresponding to their sliding scale opinions) when lining up. Students can view classmates' hand signals to determine their place in line." The Tier 3 strategy says, "Partner the student with a classmate who will read the sentence aloud, and then prompt the student to shade in a circle on the scale."
- Materials ensure teachers can target instruction to develop precursor skills necessary to access grade-level content. For example, all units have a Pre-Assessment and Accessing Prior Knowledge section for teachers to build background knowledge and pre-teach skills when beginning a new scope. For example, in Food Webs, students complete a science terminology inventory before taking a multiple-choice pre-assessment.
- Materials provide additional resources for targeted instruction and differentiation to support students who have not yet achieved mastery. The materials provide an Intervention tab as part of the 5EJ+IA model. This section includes a Small Group Intervention activity that includes tiered intervention strategies. For example, in the Matter Scope, the small group activity

includes steps for guided practice of describing the properties of matter, followed by an Act It Out activity where students play charades with vocabulary terms. The intervention tab also includes a concept attainment quiz to check student mastery after completing the practice and activity.

- Materials include an Intervention tab with small group lesson instructions that include Key Concepts and Tiered Intervention Strategies. For example, in Patterns in Space, students will review the patterns of seasons and moon phases through a small-group activity led by the classroom teacher using a globe or beach ball to model Earth. An X is marked with a piece of tape somewhere on the upper half of the sphere, representing where they live in the northern hemisphere of Earth. As the Earth is tilted and rotates, the teacher shines a flashlight on the model, and students answer questions about the patterns in space and chant rhymes. In the Active Practice, students will play the Connect It game to practice scope concepts and vocabulary.

Materials provide enrichment activities for all levels of learners.

- The materials provide enrichment activities that account for learner variability. For example, each scope has a choice board under the Acceleration Tab that provides students with many different approaches to creatively connect what they are learning to the world around them. Students choose from nine extension activities, such as creating a movie advertisement or picture book, then complete a self-assessment and reflection questions.
- For example, in the Matter Scope, the advanced strategy says, "Challenge students to consider what they know about the current topic of study. Ask, "What don't you know? What further questions do you have about it? Then, have students write at least three questions that they still have, and have them think about where they could find answers to those questions."
- For example, each unit includes a Reading Science section. The passages are provided in two Lexiles-one on grade level and the other below grade level. The materials include instructions to support all levels of readers. For example, to support beginner students, teachers are instructed to begin the activity by having the student read first to a partner. This technique will provide an additional opportunity for the student to understand the visualize-draw-explain process; advanced students take turns reading aloud, allowing a partner to assist with the reading. The partner will then visualize, draw, and explain the visualization to the student.

Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.

- The lessons include recommendations for just-in-time scaffolds to develop productive learning perseverance. Materials include resources for teachers to create a content plan to deliver content at the moment of need. Teacher resource materials provide five Differentiation Pathways graphic organizers that suggest pathways for learners based on where they are, approaches, meets, and master levels of content knowledge and skills. For example, the master (90%-100%) pathway is designed for students who have a strong understanding of the current content and can apply science content to extend their learning. These students follow the pathway of Elaborate: Science Today, Elaborate: Technology Connection, and Acceleration: STEAM Choice Board to extend their learning.
- For example, each scope contains a section in the Engage tab entitled, “Progress Monitoring and Reflection.” The description states, “Students will rank their understanding of the scope’s fundamental ideas prior to any formal introduction to the topic. Then, they will be asked to reassess their understanding at other checkpoints throughout the scope. Students will also track

their data on TEKS mastery following the same checkpoints and create bar graphs to better visualize the data."

- The materials include Learner Supports that give teachers the Advanced Strategies page to engage advanced learners. Strategies are named, with a provided description and the appropriate grade for the strategy.
- The Advanced Strategies page has a collection of activities that, when paired with content, can be a tool to engage advanced learners.For example, in the activity Partner and Ponder, students pair up with someone they did not work with during the Explore activity. Students discuss and answer questions such as telling the most important thing done in the Explore activity if there are questions about the concepts from the Explore activity that remain unanswered, or "What additional investigations could answer these questions? What is a different way that we could have investigated the content?
- For example, the materials include a variety of student activities based on the achievement of a student's grade-level mastery of scientific knowledge and skills, such as the Acceleration Tab that contains STEAM Choice Board and an option for a higher level reading passages in the Elaborate section of all units. For example, in Structures and Functions of Organisms, some of the choices on the choice board include students creating a top-10 list of examples of the structures of plants and how these structures help them survive in their environments or creating a piece of art to represent the different structures of plants using only things found in the trash or recycling.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 7.2

Materials include a variety of research-based instructional methods that appeal to various learning interests and needs.

1	Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content.	M
2	Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one).	M
3	Materials consistently support multiple practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation.	M
4	Materials represent a diversity of communities in the images and information about people and places.	M

Meet | Score 2/2

The materials meet the criteria for this indicator. Materials include a variety of research-based instructional methods that appeal to a variety of learning interests and needs.

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one). Materials consistently support multiple practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation. Materials represent a diversity of communities in the images and information about people and places.

Evidence includes but is not limited to:

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content.

- Materials engage students in mastery of the content through various developmentally appropriate instructional approaches. For example, all lessons include video clips or images to introduce and reinforce specific science concepts, as seen in the Scope Phenomenon in each scope. Materials include multiple opportunities for students to engage in collaborative or cooperative learning activities before, during, and after learning a concept. Materials include virtual educational experiences for all units where students complete guided inquiries using simulations. Students note observations and clarify questions.
- For example, the materials support student discourse with authentic opportunities to engage in structured conversations at the partner, small group, and whole group levels throughout the 5E lessons. For example, the hands-on exploration and engineering connection presents student-led investigations, questioning, and discussions. In Science Today, students explore real-world connections and applications of science content through interactions with media provided by the Associated Press. In the Virtual Experience, students interact with content using a self-guided interactive.
- For example, the Matter scope has two inquiry-based labs for students to complete in person and one virtual lab. In the Science Connection, students write a persuasive speech. The Reading

Science contains an article for students to evaluate that is available on level and below level and includes a game-based virtual experience. A guided exercise for teachers to use with small groups is under the Intervention tab. The Accelerate tab has a STEAM choice board that gives nine different options to meet student abilities and interests, such as creating a presentation, making a model, creating a graphic organizer, reading an article, creating a piece of art, or a teaching video.

Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one).

- The materials support a variety of instructional groupings (e.g., whole group, small group, partners, one-on-one). For example, in Electric Currents, students independently answer questions from the teacher about light and thermal energy. Students then work in groups to investigate the temperature of a light bulb and then create a sample test problem. Students then work independently on a peer's problem for extra practice.
- For example, the Slow Changes to Earth's Surface Explore activity teacher preparation notes state, "Divide students into groups of four or five." The Science Connection activity suggests allowing students to work in small cooperative groups. In contrast, the Engage activity suggests students work in pairs and whole groups during a Think-Pair-Share activity. The Intervention has students work independently.
- For example, in Mixtures, the Accessing Prior Knowledge activity under Engage has students find a "high five partner." The Explore labs have students working independently at first, then in groups of three to four or watching a teacher demonstration as a whole class before debriefing as a class. The Elaborate activities include whole class discussions. The Virtual experience activity suggests putting students in groups of 2-4.
- The materials guide teachers on when to use specific grouping structures based on the needs of students. For example, materials suggest a Tier 3 strategy to allow a partner to read the scenario sentences to the student. The partner may remind the student to circle either agree or disagree, then prompt the student to note an explanation.
- The materials guide teachers on when to use specific grouping structures based on the needs of students. The materials provide a graphic representation of intensity support across tiers one, two, and three. The materials state the percentages of the student population within each tier, along with the identified components for student understanding.

Materials consistently support multiple practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation.

- The materials provide multiple types of practices (e.g., modeled, guided, collaborative independent). For example, students engage in collaborative learning structures, such as roundtable reviews, while learning a new concept. Students engage in guided practice during the engage scope phenomenon and intervention guided practice, and students engage in independent practice during the STEMscopedia reading activity.
- For example, the Explore activity in Mixtures begins with a guided class discussion with provided questions and answers. Student groups create and observe two mixtures at timed increments. The teacher guides their thinking with questions. Finally, the teacher leads the class to debrief the lesson using the High Five questioning strategy. Students list five things they learned, followed by individuals ranking those things independently from most important to least important.

- In grade 4, Conductors and Insulators, students are provided an image and video of an igloo and answer questions using the think, pair, share strategy.
- The materials provide teacher guidance and structures for effectively implementing multiple types of practices. For example, each activity explains how students will work and how the activity will be structured, including grouping, talk structures, and routines. Activities vary in type of practice throughout the scope and year-long resource, giving students opportunities to engage in guided practice, collaboration, and independent work.
- For example, materials state a clear purpose and learning goals for group and independent practice activities in units and lessons. Scopes provide "I Can" statements for the lessons. Materials recommend frequent and varied learning assessments to ensure that multiple types of practices lead to student mastery. The Progress Monitoring and Reflection Description states, "Students will rank their understanding of the scope's fundamental ideas before any formal introduction to the topic. Then, they will reassess their understanding at other checkpoints throughout the scope. Students will also track their data on TEKS mastery following the same checkpoints, and they will create bar graphs to better visualize the data."

Materials represent a diversity of communities in the images and information about people and places.

- Materials represent diverse communities using images and information that are respectful and inclusive. Information in teacher guidance documents, student materials, scientific text, and assessments positively portrays diverse scientists and engineers representing genders, races, and ethnicities. Real-world examples and connections throughout the materials represent diverse communities and places, including rural, urban, and suburban communities, cities, and states across the U.S. and worldwide. Depictions of places are respectful and inclusive, emphasizing community strengths, resources, and unique characteristics. The videos portray diverse student races and settings.
- For example, images reflect the diversity of school communities and match the content. Characteristics vary in images to include race and ethnicity, skin tone, gender identity and expression, age, disability status, body size and shape, and hair texture. For example, the Sun and the Water Cycle STEMscopedia has an image of an Asian female meteorologist giving a weather report, and the STEM Career section pictures a Native American male park ranger and a brown-haired female park ranger interacting with a drone in the forest.
- Materials contain a variety of people from different ethnicities and information from various places. For example, in the Matter scope, the Stemscopedia describes a Materials Scientist with a picture of a white female. The Science Today article is about Amazon sponsoring renewable energy projects with wind and water in Australia, Europe, and the U.S. The Reading Science article features two brothers, Ricardo and Rafael, discussing a project on types of resources.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 7.3

Materials include listening, speaking, reading, and writing supports to assist emergent bilingual students in meeting grade-level science content expectations.

1	Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS.	M
2	Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.	M

Meets | Score 2/2

The material meets the criteria for this indicator. Materials include some listening, speaking, reading, and writing supports to assist emergent bilingual students in meeting grade-level science content expectations.

Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.

Evidence includes but is not limited to:

Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS.

- Materials include linguistic accommodations commensurate with various levels of English language proficiency as defined by the ELPS. For example, scopes embed scaffolds for emergent bilingual (EB) students into all sections: Engage, Explore, Explain, Elaborate, and Evaluate. It includes suggestions for concrete experiences and explicit modeling as linguistic accommodations when delivering direct instruction. For example, English Language Supports are in each section of the Unlocking the Past Through Fossils scope.In the explain section, teachers provide a script outline for students to fill in key academic vocabulary. Students read aloud their completed scripts, taking on various roles as appropriate. In the Reading Science section, teachers assign reading passages for students to act out ahead of time to allow them time to prepare for their portion of the passage.
- For example, the Resources tab and Learner Supports tab have a drop-down list of graphic organizers based on teaching strategies for use with English learners. Examples include B-M-E Fiction Chart, Claim and Evidence Map, and Main Topic and Contributing Factors Graphic Organizer.
- For example, in the Patterns in Space scope, the materials include a section that demonstrates ELPS connections by referencing the language of the ELPS and how the lesson supports any given ELPS. The materials guide linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. The materials provide sentence stems to support speaking and writing. An example, a beginner EB sentence stem is "The moon phase shown is a _____."

- For example, most activities in the scope have a section at the bottom of the teacher page with English Language Support Strategies. The applicable ELPS is listed, followed by a proficiency level tabbed chart. For example, in the Matter scope, the teacher demonstrates the Vocabulary Alive movements or gestures when beginner students use vocabulary words in context. After explaining in context, the teacher repeats the key vocabulary words with paired movements so students can focus on those words specifically. For the intermediate, the teacher demonstrates the Vocabulary Alive movements or gestures when students use vocabulary words in context. For the Advanced/Advanced High, teachers demonstrate the Vocabulary Alive Movements during the Explain or the discussion portion of the Explore activity, so students anchor the newly experienced terms with the gestures.
- For example, the English Language Support Strategies also suggest using graphic organizers to classify information, order steps in a process, or scaffold written tasks such as BME Fiction Chart, Claim and Evidence map, and flowcharts.

Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.

- Materials somewhat encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. For example, in the Physical Properties Scope materials, the beginner English Language Support Strategies for the STEMscopedia say, "Allow students at the beginning level to question and respond in their native language. Then, repeat the activity by translating their conversation into English. Proofread the English translation and give students feedback on how to improve upon formal and informal English or expert and novice English. The Intermediate strategy also suggests students write their questions and responses in their native language and translate them into English before completing the activity. Teachers are to listen to the students speak and provide feedback on improving the formal or expert side of the conversation. The Advanced/Advanced High strategy suggests students write out their formal or informal questions and responses or expert and novice questions and responses in English before completing the activity.
- For example, activities in the scope have a section at the bottom of the teacher page with English Language Support Strategies. The applicable ELPS is listed, followed by a proficiency level tabbed chart. The materials provide English Language Support Strategies in the resources tab. "The strategies are grouped by Learning, Listening, Speaking, Reading and Writing." Strategies that support using a students' first language include "Allow students at a beginning level to question and respond in their native language. Then, repeat the activity by translating their conversation into English. Proofread the English translation, and give students feedback on how to improve upon formal and informal English or expert and novice English."

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 7.4

Materials guide fostering connections between home and school.

1	Materials provide information to be shared with students and caregivers about the program's design.	M
2	Materials provide information to be shared with caregivers to help reinforce student learning and development.	M
3	Materials include information to guide teacher communications with caregivers.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials guide fostering connections between home and school.

Materials provide information to be shared with students and caregivers about the program's design. Materials provide information to be shared with caregivers to help reinforce student learning and development. Materials include information to guide teacher communications with caregivers.

Evidence includes but is not limited to:

Materials provide information to be shared with students and caregivers about the program's design.

- Materials provide information to share with students and caregivers about the design of the program. For example, the materials include a one-page letter to parents explaining the material's instructional philosophy and lesson model. The letter explains that the instructional philosophy "centers on students learning science through hands-on exploration and inquiry. Each lesson includes a series of investigations and activities to bring science to life for our students so they can 'learn by doing' and fully engage in the scientific process." It explains the 5E+IA model, and the letter states, "Each one of the components of the lesson cycle features specific resources to not only support our students' understanding of scientific concepts but also that of our teachers."

Materials provide information to be shared with caregivers to help reinforce student learning and development.

- For example, the parent letter includes a paragraph explaining how students can log in to the program at home to find resources, including a Glossary and a reference resource called STEMscopedia. "Each of these STEMscopedia reading passages incorporates hands-on activities. Additionally, rather than a traditional textbook, your student may come home with various assignments, like reading passages, vocabulary exercises, and at-home hands-on lessons."
- For example, each scope has a Science Outside the Classroom section to print or access online from home or school. This section includes a letter for parents with the TEKS covered, background knowledge, terms to know, hands-on activity, and questions to ask students.
- For example, The Slow Changes to Earth's Surface Scope includes a Background Knowledge section with three paragraphs explaining slow changes. The Terms to Know section defines terms and explains, "We will do many explorations in class to help students learn these concepts

from firsthand experiences. Encourage students to share these experiences with you and to teach you what they have learned." The activity provided has a three-step process to model slow changes to the Earth's surface by walking outside, researching online, and discussing three questions with their student about slow changes to the land.

- For example, the Matter Scope begins with a list of the TEKS covered, followed by a Background Knowledge section that includes information such as "Relative density compares the density of one material to another. If something is more dense than water, it will sink in water. Something less dense than water will float." Next, there is a list of Terms to Know with definitions. The last page of the letter contains an activity to help students learn more about the physical properties of matter by completing a scavenger hunt with items from around the house. There are simple follow-up questions for caregivers with possible responses, such as "What is true about the relative density of the object that sank in water?" The answer is provided in red and says, "It is more dense than water."

Materials include information to guide teacher communications with caregivers.

- Materials include information for parents in the form of the initial parent letter under the Resources tab and the Science Outside the Classroom parent letter explaining the scope and activity for home. The materials state, “This one-page parent letter, available for download by clicking on the book icon in the upper right corner, briefly describes the curriculum philosophy along with some of its features and can be modified for distribution to parents and guardians of STEMscopes students.” For example, in Transfer of Energy, the materials provide Science Outside the Classroom, which includes background knowledge, terms to know, questions to discuss with students, and an activity modeling the transfer of energy through objects in motion, waves in water, or sound to reinforce the science concepts at home.
- The materials include information to guide teacher communication with caregivers. The resources include a Help Introduce Parents to STEMscopes page. This page instructs teachers that the resources have a one-page parent letter available for download that briefly describes the curriculum philosophy and some of the scope’s features. It also states that teachers can modify the one-pager for distribution to parents and guardians of STEMscopes students. Materials provide clear teacher guidance for inviting ongoing partnerships and sharing progress updates with parents and caregivers. For example, teacher guidance suggests the “Progress Monitoring sheet is a useful communication tool to use with a student’s caregiver about the successes and/or needs of the student with specific learning goals. This sheet can be referenced when discussing student progress, areas of concern, or needs for differentiation throughout the instructional period of this scope.”

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 8.1

Materials include year-long plans with practice and review opportunities that support instruction.

1	Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built in the course materials.	M
2	Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts.	M
3	Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials include year-long plans with some practice and review opportunities that support instruction.

Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built in the course materials. Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts. Materials provide some review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.

Evidence includes but is not limited to:

Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built in the course materials.

- The materials include a year-long programmatic scope and sequence that show how science knowledge and skills are addressed for the year. The scope and sequence includes the science objectives aligned to grade-level TEKS and suggested pacing instructional days for each scope.
- Materials also list in each scope overview, and there is a correlation document that includes all other remaining TEKS. The Standards Planning tab on each scope includes a Scope Matrix that lists and a Scope Overview that explains how the scientific and engineering practices and recurring themes and concepts are supported in the scope.

Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts.

- The materials provide teacher clarity in understanding how activities and experiences connect concepts, SEPs, and RTCs applicable to each scope, or unit, for all grade 4 scopes. For example, the Explore Activities tab has a Making Connections section that lists the exact TEKS, SEPS, and RTC that are used in the scope.
- Materials provide teacher guidance within each scope.For example, in the Grade 4 Physical Properties of Materials scope, the Properties of Matter Stations lab lists all the science and engineering practices and recurring themes. It includes questions for teachers to use to make connections to core concepts, such as “Why do you think some objects float and some do not?” and “Can you describe the differences in their properties?” In the Grade 4 Matter Scope, the

resource states, "After students complete the activities, ask students how this activity relates to the Scope Phenomenon (found in the Engage section) of a root beer float being made. Encourage students to ask questions and communicate what they observed about the physical properties of temperature, mass, and magnetism."

- Materials contain two student handbooks: one about the scientific method and another about the engineering process. It also has a set of scientific and engineering practices resource cards to help teachers incorporate the SEPs in the classroom. The program also includes cards for Grade 4 for the science and engineering practices and cards for Grades 3-5 for the recurring themes that have discussion prompts to provide guidance for teachers to help students make connections.

Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.

- The materials include some intentional practice and spiraling of previously taught knowledge and skills from earlier lessons/grade levels and the current lesson's science knowledge and skills. The practice opportunities somewhat build on previously taught science knowledge and skills. Scopes include a spiral opportunity section but do not include direct information on how to implement the spiral and no specific activities for spiraling. For example, in grade 4 this section states, "In the Mixtures scope, students observe what happens when various solids and liquids are mixed together. In the Matter scope, students identify the states of matter of different substances. " to make a connection to the scope taught before this scope.
- Scopes also include sections for pre-assessments, a Pulse Check (check for understanding), and a Scope Assessment for standards practice within each scope for Grade 4. However, materials do not include spiral practice for the core concepts within other scopes.
- Materials include teacher information on how to utilize specific components of other scopes as a review within a scope. The Spiral Opportunity section of the Mixtures scope suggests teachers "can utilize the Science Connection from the Matter scope before starting the Hands-on Explore: Investigating Mixtures to support mastery of identifying the states of matter of different substances." For example, in the Electric Circuit scope, the materials suggest teachers and, "You can utilize the Virtual Experience in the Animal Structures and Functions scope before starting the Hands-on Explore: Comparing Life Cycles to support mastery of how an animal's structures and functions help them to survive through the different stages of their life cycles." Materials also cite the Reading Science in the Our Solar System scope before starting the Hands-on Explore: Comparing Weather to support understanding of the change in seasons occurring because of the Earth orbiting the Sun for a spiral review
- Materials include the intentional practice of the current lesson's science knowledge and skills. Each scope follows the 5E lesson plans, which include several opportunities for students to practice their knowledge and skills in the Explain, Elaborate, and Evaluate sections. There is also a STEAM Choice Board in the Acceleration tab.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

1	Materials provide teacher guidance and recommendations for use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning.	M
2	Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level.	M
3	Materials include a comprehensive list of all equipment and supplies needed to support instructional activities.	M
4	Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include classroom implementation support for teachers and administrators.

Materials provide teacher guidance and recommendations for use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning. Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level. Materials include a comprehensive list of all equipment and supplies needed to support instructional activities. Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.

Evidence includes but is not limited to:

Materials provide teacher guidance and recommendations for use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning.

- The materials include overview documents to support teachers in understanding how to use all materials and resources as intended. Materials provide an introductory video that describes the curriculum components of lessons that include phenomena, scientific processes, and recurring themes to ease the search through the materials.
- Materials include a Resources Tab on the learning platform that offers teacher resources, including videos, Planning with STEMscopes (which provides a Lesson Planning Guide), and Instructional support. For example, the Instructional Supports tab provides resource cards to guide teachers on implementing the SEPS and RTCs that explain "what the student is doing" and Teaching Notes to support implementing TEKS.
- Each scope includes Teacher Background Instructional support and guidance, virtual experiences, instructional strategies on intervention, and differentiation that include a teaching strategy. For example, in the grade 4 Matter Scope, the Accessing Prior Knowledge activity under the Engage tab includes a Sliding Scale strategy that has students rank their agreement level with statements. Materials also include Enrichment activities for grade 4 with a STEAM

Choice Board with nine activities, a self-assessment, and reflection questions. To help students connect what they are learning with real-world experiences, teachers are instructed to "Review the options on the Choice Board and decide how many activities to ask students to complete. You can instruct students to complete one activity per row, to complete all activities, or to play tic-tac-toe and complete a row, column, or diagonal line." One example the choice board offers for the Matter scope includes creating a digital presentation and a picture book.

- The materials are organized to facilitate ease of implementation and use. For example, the materials have tools to support navigating the resources. The tools include a Suggested Scope Calendar with daily planning, Intervention, and Acceleration. Each scope is formatted the same and has the same pathways. Materials also include a Digital Texas Navigation Guide with a visual representation of the location of the scopes. Materials include a graphic organizer that describes the lesson cycle and has dropdowns that include tips for 5E + IA Instructional Model, Teacher Preparation, Planning Instruction, and Differentiation Pathways.

Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level.

- The materials include science standards correlations for lessons units, lessons, or activities within the context of the grade level or course in teacher guidance documents and online resources. For example, the grade 4 materials include a Standards Correlation document and a Standards Snapshot table that indicates where each content SEPs, RTCs, and TEKs are within the program. There is also a side-by-side document that compares the new TEKS with the 2017 TEKS.
- Grade 4 materials also contain a Teacher Background tab for each scope that explains the content TEKS in detail. There are visuals and text included. Components of each scope also include TEKS information. For example, in the Picture Vocabulary activity within each scope, there is a Standards button that lists all the Texas TEKS covered in this lesson. This Standards button is in multiple lessons inside each scope.
- Materials include a Scope Matrix which designates where individual TEKS are applied within scope activities. The content TEKS are also broken down into "I Can Statements" for student use and into verbs and nouns under the Standards and Vocabulary Unwrapped section.
- The materials include cross-content standards for ELA, math, and social Studies in sidebar supports within the teacher's guide to lessons. Each scope includes a standards overview and activities connected to engineering, reading, and math in the elaborate section. For example, in the grade 4 Investigating Forces scope, the Standards Planning page includes standards for Math, Reading Language Arts, English Language Proficiency Standards, and college and career readiness standards connections to the lessons in this scope. The ELA TEKS connects to the Reading Science lesson under the Elaborate Tab of each scope. Also, Math Moments, included in some Explore activities, are connections to the Math TEKS.
- Materials embed cross-content correlations through tips, reminders, and examples for reinforcing reading and writing, calculations, and problem-solving skills as students apply them to science learning.

Materials include a comprehensive list of all equipment and supplies needed to support instructional activities.

- Materials include a Science Materials List for grade band K-5 on the Resources tab of the learning platform. The Materials list names the materials needed to complete the activities, including consumable and reusable supplies by grade levels and scopes. In the Scope Kit List tab, there is a Science Materials List for each grade level that includes detailed information, including the scope name and section where the materials are required and quantity suggested. Grade 4 materials include a hot plate, mortar and pestle, potassium iodine solution, and triple beam balance.
- Within each scope, materials include a list of needed supplies and equipment for each portion of the scope. For example, in the Properties of Matter scope, the Explore: Properties of Matter Stations activity includes a Materials section broken down into Activity Files, Reusable Materials, and Consumable Materials.

Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.

- The materials provide teacher guidance for safety practices and grade-appropriate use of safety equipment during investigations, in accordance with Texas Education Agency Science Safety Standards. For example, For example, in the Grade 4 Resource tab, the Lab Safety section includes grade-appropriate Safety Posters and Safety Equipments Posters to reference during lessons and a Laboratory Safety Contract to explain lab safety rules.Posters include safety instructions such as, “Read all instructions carefully and understand the purpose of the investigation before you begin the investigation.” and, “Read all instructions carefully and understand the purpose of the investigation before you begin the investigation.”
- Materials provide teacher guidance for safety practices within each scope. For example, in the Grade 4 Physical Properties of Materials Scope, in the Explore: Properties of Matter Stations activity, there is a prompt to "Ask students to identify and demonstrate any possible safety precautions they should take at each station. In the Grade 4 Matter scope, in the Explore: Mass, Temperature, and Magnetism activity, there is a reminder to teachers to "spend the majority of the time at stations 1 and 2 to monitor students' safety" and also to review safety procedures for using a thermometer.
- The materials provide student guidance for safety practices and grade-appropriate use of safety equipment during investigations, in accordance with Texas Education Agency Science Safety Standards. The Grade 4 Resources tab on the learning platform includes a Laboratory Safety Contract to explain lab safety rules. Grade 4 materials also provide student guidance for safety practices within each scope, but teachers give the guidance to students rather than materials directing students. For example, in the Electric Currents scope, students test the temperature of a light bulb. Materials direct the teacher to, “Remind students not to touch the clamp lamp with their hands or body as there is a risk of a burn. Remind students to avoid looking directly at the light to avoid eye damage.”

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 8.3

Materials provide implementation guidance to meet variability in program design and scheduling.

1	Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities.	M
2	Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression.	M
3	Materials designated for the course are flexible and can be completed in one school year.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials provide implementation guidance to meet variability in program design and scheduling.

Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities. Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression. Materials designated for the course are flexible and can be completed in one school year.

Evidence includes but is not limited to:

Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities.

- The materials include support for specific scheduling considerations, with guidance for covering required science content for the grade level/course within a variety of schedules. Materials include a Suggested Scope Order and Pacing Guide for the entire year. The materials state that "suggested Pacing is currently based on the time needed to cover the majority of Stemscopes elements in each scope," and include the estimated days to complete activities. For example, the grade 4 Investigating Forces Suggested Scope Calendar allows two days for the Explore activities.
- Grade 4 materials include a Getting Started with Stemscopes planning section with a graphic explaining the 5E + Intervention and Acceleration model. The planning instruction drop-down menu breaks down each of the E's. In addition, there is a sample lesson planning guide for a typical eight-day scope.
- The materials include guidance and recommendations on required time for lessons and activities with options for various scheduling considerations. Each scope homepage has a suggested scope calendar that includes the number of days and the statement. Materials state that the schedule assumes a 45-minute science period each day.

Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression.

- Materials provide guidance for strategic implementation that ensures the sequence of content is taught in an order consistent with the developmental progression of science. The materials

include a suggested sequence of units that considers the interconnections between the development of conceptual understanding and scientific and engineering practices.

- For example, the resource materials contain a Differentiation Pathways graphic illustrating how teachers can strategically implement the activities within the scopes. Activities on the suggested calendar are marked with one asterisk for low-complexity elements, such as Reading Science and Connect Science Video, and two asterisks for high-complexity elements, such as Science Connection and Engineering Connection. The differentiation in asterisks allows teachers to tailor instruction.
- Each scope follows the 5E model: Engage, Explore, Explain, Elaborate, and Evaluate. Grade 4 materials contain multiple activities within each of the 5Es, as well as the Intervention and Acceleration tabs. Teachers have the flexibility to determine what their students need based on the built-in tools and assessments like the Progress Monitoring and Reflection Activity and Pre-Assessment on the Engage tab, the Pulse Check under the Explain tab, and both the Claims-Evidence-Reasoning and Scope Assessments under the Evaluation tab. The teacher uses the tools to determine whether to use the small group intervention and concept attainment quiz under the Intervention tab or give students the choice to extend their learning with the STEAM Choice Board on the Acceleration tab.

Materials designated for the course are flexible and can be completed in one school year.

- The materials include units, lessons, and activities for a full year of instruction. All grade-level scopes can be reasonably implemented within the time constraints of a school year, and the activities and routines within each lesson can reasonably be completed within the length of time suggested. Grade 4 includes 15 scopes with a suggested time frame of 113 instructional days.
- Materials provide guidance for adjusting to local time and scheduling constraints. For example, each scope has multiple lessons to choose from with various times to complete them. Teachers can plan for their classes by choosing the activities the students complete based on school years of varying lengths and varying lengths of class times.
- Materials provide teacher guidance on how to make adjustments to extend or condense units and lessons within the Lesson Planning Guide and states, "Use the Lesson Plan Template along with the Suggested Scope Calendar on the home page of each scope to plan your lessons before providing instruction to your students."

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 9.1

The visual design of materials is clear and easy to understand.

1	Materials include an appropriate amount of white space and a design that supports and does not distract from student learning.	Yes
2	Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting.	Yes
3	Materials include digital components that are free of technical errors.	Yes

Not Scored

The visual design of materials is clear and easy to understand.

Materials include an appropriate amount of white space and a design that supports and does not distract from student learning. Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. Materials include digital components that are not free of technical errors.

Evidence includes but is not limited to:

Materials include an appropriate amount of white space and a design that supports and does not distract from student learning.

- The digital materials include appropriate white space and an overall design that does not distract from student learning. For example, student materials have an appropriate design to support student learning. Student-facing materials include a clear assignment type and concept heading. Titles and headings are prominent and clear; sections have marked subheadings in a clear, relevant hierarchy. The content is organized logically, with each scope organized the same throughout the year.
- For example, below-level reading science text incorporates less text and more white space than the on-level text. Student handouts include graphics and charts that have easy-to-read labels. Materials provide identified areas under questions that ask for written responses or drawings from students. Materials use similar spacing between sections, equal line height in body text, and slightly larger spacing between paragraphs within reading materials within Reading Connection.
- For example, the grade 4 Weather versus Climate Reading Science Student handout includes appropriate use of white space around the text, making content easy to read and comprehend. The Reading Science handout uses two fonts: one for the heading and another for the passage.
- The Virtual Explore section in Matter displays five physical properties students can explore. As students click on the properties, information appears on the right side of the properties. The information and reset buttons are above the text. White space dominates the remaining area.
- The STEMscopedia, designed as a newsletter, has two columns of text interspersed with full-color photographs and diagrams. It includes highlighted vocabulary words with definitions on yellow sticky note graphics and thinking questions on spiral notebook graphics.

Accelerate Learning STEMscopes Science TX Grade 4

Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting.

- The materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, the materials include an age-appropriate picture of a child outside in the Weather versus Climate Reading Science student handout. The image is put in the paragraph unobtrusively and is the right size for the page.
- For example, the grade 4 Weather versus Climate STEMscopedia has a color-coded climate chart of San Antonio, Texas. It is not distracting and aids students in understanding the importance of tracking the climate of a location over time. In the STEMscopedia, there are five colored images of weather over the four seasons, illustrating how the weather varies throughout regions and seasons, along with three illustrations of tools used to measure weather.
- Resources include vocabulary cards that clearly and accurately clarify and illustrate the new terms the students are learning. The materials use focused photos, arrows, and labels to highlight important features. The vocabulary word appears at the top and center of the slide, followed by a large, clear image of the word in the middle and a bolded, brief definition at the bottom of the image. For example, the Force and Motion Scope includes magnified images that clearly demonstrate gravity, with a close-up of a basketball going through a hoop with a labeled down arrow to show direction.
- For example, "Problem-Solving Steps in Pictures" includes graphics with a simple image and a succinct one-sentence description that depicts a clear transition from one stage to the next.
- The materials include a diagram illustrating how to make crystal snowflakes in Stemscopedia's section on Mixtures. The next page shows a photo of lemonade. Further along in the scope, another diagram illustrates the combination of two materials to create mixtures.
- Materials include 3D Virtual Experiences using school-aged children and simple zoomed-in manipulation activities, such as pushing a ball into a hole.

Materials include digital components that are free of technical errors.

- The materials include digital components free of technical errors. Materials are free of spelling, grammar, and punctuation errors. Student-facing documents and answer sheets are free of technical errors. Teacher resource sections are free of technical errors.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 9.2

Materials are intentionally designed to engage and support student learning by integrating digital technology.

1	Materials integrate digital technology and tools that support student learning and engagement.	Yes
2	Materials integrate digital technology to support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content.	Yes
3	Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.	No
4	Materials integrate digital technology that is compatible with a variety of learning management systems.	Yes

Not Scored

Materials are intentionally designed to engage and support student learning by integrating digital technology.

Materials integrate digital technology and tools that support student learning and engagement. Materials integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. Materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. Materials integrate digital technology that is compatible with a variety of learning management systems.

Evidence includes but is not limited to:

Materials integrate digital technology and tools that support student learning and engagement.

- The materials integrate digital technology and tools that support student learning and engagement. For example, materials are fully digital, with all components available online as web pages or PDF digital downloads. Each scope contains a Virtual Explore lab and a Virtual Experience as an Elaborate activity. Assessments are available online. Materials have interactive, online assignments.
- Materials have multiple settings to guide integrating digital technology. For example, the Teacher's Instructions for the Virtual Explore in the grade 4 Matter Scope say, "Ideally, students should access the simulation on a device. The activity can be done in groups or individually. If devices are not available, you can project the simulation for students to complete as a class." There are instructions for explaining the simulation using a Poll 0, 1, 2, and 3 strategy.
- For example, grade 4's Slow Changes to Earth's Surface Scope contains a Virtual Explore: Quick Changes to Land in the Explore tab. The Teacher Notes explain materials require "no alterations for students to complete in either a synchronous or asynchronous virtual environment."

Accelerate Learning STEMscopes Science TX Grade 4

Materials integrate digital technology to support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content.

- The materials integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content.
    - For example, materials provide interactive simulations and models for students to explore scientific and engineering practices in a virtual environment.
    - For example, the grade 4 Acceleration Steam Choice Board for the Food Webs Scope provides options such as creating a website, a word cloud, or a movie
    - For example, each scope contains a Virtual Experience activity that allows students to interact with the content of the scope. In the Grade 4 scope Matter, digital technology provides a virtual experience in which a candy maker demonstrates using the physical properties of volume, state of matter, temperature, and mass to make candy. Students click on each property and read a description while observing the candy-making process.
    - For example, students use a digital notebook when enrolled in a STEMscopes 3-5 class. The digital notebook can be customized by the teacher for students and contains resources to support learning and engagement.

Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.

- The program does not integrate digital technology that provides opportunities for teachers and/or students to collaborate, though it does integrate digital technology to support student engagement,
- Digital technology included in the materials lacks components like discussion boards, video conferencing, and cyber spaces that would encourage collaboration.
- The program documents lack guidance and resources to provide opportunities for teachers and/or students to collaborate using digital technology.
- Digital learning games included in the program are not designed to be completed by interacting or collaborating with others.

Materials integrate digital technology that is compatible with a variety of learning management systems.

- Digital materials are accessible and compatible with multiple operating systems and devices. The materials are accessible on iPads, iPhones, iPods, tablets, and mobile devices. Material requirements state that the program is compatible with the “Latest Google Chrome, IE 11, Latest Microsoft Edge, Latest Safari.” For example, the STEMscopes website explains, "A web-capable device (tablets, phones, computers) requires no additional software, apps, or updates to be able to fully use STEMscopes." The website explains that STEMscopes provides single-sign-on ability via Clever, MS SAML, Google SSO, LTI SSO, ClassLink, and Schoology. We support integration with client LMS systems through IMS Global’s Thin Common Cartridge (ThinCC) protocol.

Accelerate Learning STEMscopes Science TX Grade 4

Indicator 9.3

Digital technology and online components are developmentally and grade-level appropriate and provide support for learning.

1	Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression.	Yes
2	Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.	Yes
3	Materials are available to parents and caregivers to support student engagement with digital technology and online components.	Yes

Not Scored

Digital technology and online components are developmentally and grade-level appropriate and provide support for learning.

Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression. Materials provide teacher guidance for the use of embedded technology to support and enhance student learning. Materials are available to parents and caregivers to support student engagement with digital technology and online components.

Evidence includes but is not limited to:

Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression.

- Digital technology and online components are developmentally appropriate for the grade level. The simulations and interactive activities components are developmentally appropriate. For example, in grade 4 Weather Versus Climate, Explore activity includes developmentally appropriate graphics such as easy-to-follow maps and activity where students determine whether the data refers to weather or climate. Students observe the transfer of energy of waves in water by using a simple virtual simulation to apply different amounts of force to create a wave in water and observe the wave's height and length.
- Materials provide information that identifies how digital and online components align with grade-level science knowledge and skills. The materials include several pages of relevant information under the Resources tab. For example, materials provide a section called Suggested Scope Order and a Grade Level Standards section on the Planning with Stemscopes tab that includes a Texas Standards Snapshot document that lists all the TEKS and where the TEKS are included in each scope. The Planning with Stemscopes tab also has Grade Level I Can Statements with the following explanation "Student-friendly learning objectives help lay the foundation for a great lesson. Helping students understand what they should learn that day provides a basis to really gauge learning." Materials have a teacher's guide for each scope that includes the content TEKS, SEPS, and RTCs for the scope and a Scope Matrix that lists each TEKS and tells where to find them. The Matrix also includes the ELPS and their location.

Accelerate Learning STEMscopes Science TX Grade 4

Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.

- Materials provide teacher guidance for the use of embedded technology to support and enhance student learning
    - For example, in the Grade 4 scope, Matter, when viewing the Virtual Experience, the teacher guide says, "Verify that the 3-D renderings load and function on each internet-enabled device that students will use to access the experience." It also directs teachers to demonstrate how to access the 3-D renderings and monitor students as they use them.
    - Teacher guidance for the use of embedded technology with learning center activities includes a Preparation section with instructions for getting students logged into the website and navigating to the Technology Center for the Scope. It also includes an Activity section with instructions for guiding students to use the embedded technology to enhance student learning.
    - The materials provide a guidance video for the Scope lesson format.

Materials are available to parents and caregivers to support student engagement with digital technology and online components.

- The materials provide parent letters for each Scope to support student engagement with the digital platform at home. This letter explains the program, its benefits, and its usage within the classroom. The parent letters state, "Your student will receive login credentials to access the program, which features some always-available resources that can be browsed at home, including a Glossary and a reference resource called STEMscopedia. Each of these STEMscopedia reading passages incorporates hands-on activities Additionally, rather than a traditional textbook, your student may come home with a variety of assignments, like reading passages, vocabulary exercises, and at-home hands-on lessons."