Studies Weekly Texas Science Grade 5

Studies Weekly Texas Science Grade 5 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.
- The materials include some 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 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 intentionally 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.

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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 TEKS Alignment Citation Table demonstrates how the materials include opportunities for students to engage in SEP through multiple formats across the year. For example, the chart summarizes eight opportunities across the year for students to practice standard 5.1Ai., which calls for students to ask questions, plan, and conduct investigations to answer questions and explain phenomena. Unit 1 introduces SEP 5.1Ai during an engaging activity as students share phenomena they desire to learn more about during the year. As a part of the activity, students generate questions and consider how scientists study the phenomena as well as what skills a scientist needs. Students revisit the standard in Units 3 and 10.

- Each unit includes multiple opportunities for students to demonstrate their mastery and practice the skills learned in the unit through performances. For example, in Unit 8, “The Fastest Car”, students have three different methods for formal assessment. In one assessment students complete a unit assessment with various question types from fill-in-the-blank, utilize vocabulary in context, and analyze images related to a race car's mechanical energy. Other questions ask students to use evidence from an image to support a claim in a short response about the purpose of a seatbelt. In Unit 8, students demonstrate mastery using a performance task. Students may complete one or multiple of the four different task options. The tasks include real-world scenarios and tables or graphs for students to demonstrate their understanding of the scientific principles learned during the unit or throughout the year. This task not only requires students to read and interpret information but to defend their claim from other tasks and justify their claim with evidence. Unit 8 also includes a read-and-respond text which requires students to reason, justify, and summarize information read independently.
- Units alternate between a focus on SEP as students develop, practice, and demonstrate mastery of TEKS concepts within each unit. In *Unit 8,* “Engineering Design: Runaway Trucks”, students engage with SEP 5.1B “Use scientific practices to plan and conduct descriptive investigations and use engineering practices to design solutions for the problem” by solving the issue of trucks losing traction in the mountains. Students work collaboratively to plan and create a runaway ramp design with given materials, build a prototype, and test their design. After completion of the unit learning, teachers assess student understanding of the TEKS as students evaluate practices related to their work such as, "Jerome is testing how different track materials affect the speed of a toy car. Which is the best way for Jerome to record results during the investigation?"
- Materials for each unit include a “Standards Coverage Chart” highlighting the opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices throughout the unit, as outlined in the TEKS. For example, in Unit 10, “Baking Up Electricity”, students ask questions and define problems in Activity 1, plan and conduct investigations and design solutions in Activities 2-4, collect evidence in Activities 2-9, develop and use models in Activities 2-7, 9-10, and develop explanations, propose solutions, communication explanations, and solutions, and listen actively and discuss in Activity 10.

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

- Each unit Teacher Edition includes a section outlining the RTC students learn about within the unit and the activities to which they align. For example, in Unit 1 students are introduced to seven RTCs including cause and effect, scale, proportion and quantity, and energy and matter. Subsequent units focus on one RTC focus per unit as well as spiraling other relevant RTC.
- For most units, the weekly teacher documents provide a section, “Unit Transition”. Teachers highlight the connection to previous units of study. For example, in Unit 10, “Baking Up Electricity”, teachers remind students that in the previous unit, they explored energy transformations in a flashlight and that in this unit, students will explore the components of a closed electrical system. Students then watch a Phenomenon Video and teachers generate thinking and questions about the activity using the Phenomenon Questioning Technique before beginning the new unit.
- Most units provide a “Prior Knowledge” article and related vocabulary for teachers to review before the start of the unit. In Unit 10, the “Baking Up Electricity: Prior Knowledge Article”

reviews vocabulary words such as component and pathway as well as forms of energy, insulators, and conductors.
- Weekly Student Readers indicate the specific RTC the activity focuses on. For example in Unit 15, as students learn about Earth and space, they study the RTC of cause and effect. In Activity 1, students create a guiding question and hypothesis related to the phenomenon, "Texas has many landforms but no U-shaped valleys." In this week's phenomena, students will make connections between the glacier valley formation and the land features of Texas.

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

- The "Vertical and Horizontal Alignment" document in the Teacher Edition shows the progression of each TEKS from grade to grade increasing in difficulty. For example, the strand "Earth and Space" indicates that students in grade 5 know that there are recognizable patterns and processes on Earth after learning in grade 4 that there are processes on Earth that create patterns of change.
- The materials are structured to begin the year with four weeks introducing students to the thought process of the SEP and RTC as well as considering how to think like an engineer before then engaging students in units where they will use these concepts. The grade 5 "Scope and Sequence" document outlines the core ideas for each unit. In Unit 1, students and teachers lay a foundation for scientific investigation and engineering design, In Units 2-6, students learn about Matter and Energy, Units 7-11 focus on Force, Motion, and Energy, Units 12-16 include Earth and Space, and Organisms and Environments are included in Units 17-21. No review weeks are present at the end of the year (unlike in grades 3 and 4). All unit topics of study correspond to core ideas in the TEKS.
- The *Teacher Background* webinar lists the standards which support the nature of scientific work to develop science literacy in students. When discussing the methods of instruction in the webinar, the presenter explains how it integrates strategies that promote student demonstration of learning versus just recall or understanding levels of learning.
- The Teacher Edition includes a "Correlation to the TEKS and ELPS" document that reflects how concepts are taught and built over the units of instruction. For example, 5.4.F.i appears within Unit 6, "Picture Walk", and Unit 10, "Unpacking Text."

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 *Texas Science Vertical and Horizontal Alignments* teacher resource outlines how the SEP are integrated across the academic year providing sufficient opportunities to ask questions and plan and conduct classroom, laboratory, and field investigations, and engage in problem-solving For example, in Unit 9 students develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem. In Unit 13 students develop explanations supported by data and models. In Unit 21 students communicate explanations individually and collaboratively in a variety of settings and formats.
- Unit printables included in the Teacher Edition, provide support for teachers to facilitate students asking questions about phenomenons that are used to develop investigations throughout the unit. For example, the printable includes the following sections: *Produce*

Questions, Collect Questions, and *Create a Student-Driven Question Board.* The *Phenomenon Questioning Technique* procedures illustrate how teachers can group students and model producing questioning strategies and record them on the *Asking Phenomenon Questions* printable.

- Students plan and conduct investigations in most units of the materials (except the first and last). Consistent procedures and tools in the materials facilitate student investigation of science concepts. Concepts align with the TEKS and for each unit, students follow a consistent procedure to investigate questions such as, "What do you predict will change when I place a deflated balloon and an inflated balloon on this balance?" Because these procedures and tools are consistent, students have abundant opportunities to conduct investigations as outlined in the TEKS.
- Each Unit Week, Activity 1 includes a *Success Criteria* resource for modeling, asking questions, and forming a hypothesis. For example, the Success Criteria for Unit 5 Week 10 *Magical Mixing Matte*r is, "I can ask questions and hypothesize about what happens when it rains on a lake." The lesson plan guides the teacher in the formulation of the questions process by first presenting a phenomenon comic strip, introducing the phenomenon, and completing the *Asking Phenomenon Questions* printable.

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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 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.

- Each unit begins with a focus on a natural phenomenon to support students in constructing, building, and developing knowledge through authentic application. In Unit 5, students study the phenomenon, "Ocean water, like on South Padre Island and other Texas beaches, looks the same as tap water." Students begin this study with a short video, a graphic text with a dialogue of students encountering the phenomenon, then an activity for students to hypothesize about the cause of the phenomenon.
- The "Texas Science Weekly Teacher Guide" explains how teachers can use the resources to support student learning, including a rubric for phenomenon introduction and a phenomenon explanation. The introduction resource describes the inclusion of phenomena by saying, "Each phenomenon anchors the unit by providing relevance and motivation to study the science concepts of the unit." The guide goes on to explain how this help learning by being applicable and accessible to all students. The phenomena may be a student experience students can relate to, a demonstration, or a video.

- Units throughout the materials embed TEKS-aligned phenomena through a comic and lesson activity as teachers introduce the concepts for the week. For example, in Unit 20, “Built for Desert Life”, students read a phenomenon comic about seeing lizards on a trip to the Chihuahuan Desert during a four-wheeler ride. The students discuss their thoughts and formulate questions as the teacher records them on a Student-Driven Question Board. Each phenomenon comic relates science concepts to a real-life situation that students may have encountered.
- The materials use phenomena as a central anchor that drives student learning across grade-level content. Students develop content knowledge as they work to construct explanations of the phenomena and/or solve engineering problems through the lens of recurring themes. For example, Unit 11, “Light Interactions,” introduces the phenomenon by asking students to remember how they “used cause and effect in Unit 8 to investigate the effect of force on an object in a system” and explaining how it will be crucial to the science learning in this unit. Students experiment with a glass of water and a solid straw to investigate the guiding question, “How does light travel and interact with different objects?” Students conduct investigations in Activity 2: “Light Travels”, Activity 3: “Interacting with Light,” Activity 4: “Reflection Direction”, and Activity 5: “Refraction in Action” before explaining their learning of the phenomenon. Students reflect and connect by explaining how the discoveries they made about how light interacts with objects help them make sense of the phenomenon. Materials provide an opportunity for students to extend their learning by conducting an optional Bending Light Simulation.
- The student materials provide opportunities to investigate phenomena. The unit culminates with an opportunity for students to reflect and discuss their learning about the phenomenon presented at the beginning of the unit. For example, in Unit 18, “Wolves and Webs,” the phenomenon comic strip mentions that the gray wolves have returned to Yellowstone National Park after their absence since the early 1900s. Students ask questions and formulate a hypothesis as they recall what they learned about Energy and Matter. In Activity 4, “Wolves Change Ecosystems”, students use the *Tracking Populations* printable to gather and analyze data and predict how the removal of the gray wolf from the Yellowstone ecosystem affected the population of other organisms.

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

- The materials guide students to connect to prior knowledge and experiences related to phenomena and engineering problems. In Unit 16, the Student Edition connects the fact that reusable bottles help keep plastic out of the land, ocean, and air, with a story about a community in Austin, Texas desiring to create a community garden. As students make these real-world connections, they will be ready to propose, design, and explain solutions that minimize environmental impacts on Earth's resources. After watching the phenomenon video, students view a comic about two kids who are considering the importance of picking up litter and how it impacts the environment. This scenario connects with common experiences for many students in Texas.
- The” Introduction to Texas Science Weekly” explains how teachers can use the resources to support student learning. The introduction resource describes the inclusion of phenomena by saying, "Each phenomenon anchors the unit by providing relevance and motivation to study the science concepts of the unit." The guide goes on to explain how this helps learning by being

applicable and accessible to all students. The phenomena may be a student experience students can relate to, a demonstration, or a video.

- Teacher questioning encourages students to think about and build upon prior knowledge as they explore phenomena. In Unit 20, “Built for Desert Life,” teachers ask, "What organisms (plants and animals) live in the Chihuahuan Desert?" encouraging students to think about what they know about desert environments.
- Teacher questioning encourages students to think about and build upon prior knowledge as they solve engineering problems. In Unit 16, “Engineering Design: Plastic Problem Solving”, teachers ask, "Why should we use reusable water bottles?" as students begin to consider their use of plastic.
- The Student Edition introduces each unit using a comic strip, and scenarios students can relate to. The scenarios are authentic and engage students by motivating them to develop and apply scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS. For example, in Unit 16, two kids find plastic water bottles littered on the ground, an occurrence experienced by all at some point. In Activity 3, students read about the problem of plastic pollution in Texas’ shorelines and about what a young girl did to try to solve the problem. In Activity 4, students research a pollution problem in their community and plan for a solution.
- The unit lesson guides include the unit objectives that indicate the TEKS, SEP, and RTC that will be covered throughout the unit. The materials include lesson plans that help the teacher guide the students to make personal connections to the phenomenon comic strip by sharing prior knowledge and experiences. Students ask questions and share what they knew before watching the phenomenon video.

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

- Each unit provides a *Teacher Background Information Podcast* that explains how the unit builds on students' prior knowledge and outlines the content within the unit. For example, in Unit 15, “*There is No U in Texas,”* the podcasts explain the processes of weathering, erosion, and deposition and give examples of each.
- Unit teacher editions begin by explaining the phenomenon for the week and unit and how it connects to real-world situations in the student materials. Unit 17 summarizes the phenomenon, "The black-tailed prairie dogs of Caprock Canyons State Park survive by digging homes underground." Later, in the Student Support Resources portion of the Teacher Unit Edition explains how the media helps students understand the phenomenon. For example, the *Survival on the Texas Prairie: Phenomenon Video* states, "This video will introduce students to the phenomenon," and the *Bird Survival on the Texas Prairie Podcast states,* "This podcast will describe how birds on the Texas prairie interact with abiotic and biotic factors for survival. This podcast is used in Activity 5."
- In the “Unit Weekly Teacher Guidance” documents, the materials contain a chart outlining concepts and success criteria goals for the phenomena being studied. For example, in Unit 20, “Built for Desert Life”, concepts include Patterns and Structure and Function. Materials include success criteria goals such as, "I can analyze the structures and functions of different species to identify how organisms survive in the Chihuahuan Desert."
- In the “Unit Weekly Teacher Guidance” documents, the materials contain a chart outlining concepts and success criteria goals for engineering problems being studied. For example, in Unit 16, “Engineering Design: Plastic Problem Solving”, concepts include Patterns, Cause and Effect,

and Stability and Change. Materials include success criteria goals such as "I can communicate solutions that reduce the effect of plastic on environments in order to develop my own solution."

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Indicator 3.1

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

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 build knowledge systematically, coherently, and accurately.

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.

- Materials include a “Vertical and Horizontal Alignment” document for the teacher to better understand how the skills students are learning to connect to other grade-level learning standards. For example, in grade 3, when studying Force, Motion, and Energy, the “Vertical Alignment” resource explains that students should know "The nature of forces and the patterns of their interactions." The materials explain that in Unit 5, students engage in the 3.7A standard as they "Demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls." The portions of the standard that are new for the grade level are bolded for reference. In grade 3 ,students focus on the push against one another and how the shape may change from this force. In grade 4, the standard requires students to plan, conduct, and describe investigations about forces, and this expands to include friction and an additional force. By grade 5 students, "Investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy."
- The “Vertical and Horizontal Alignment” document illustrates the progression of TEKS across a single grade level. For example, in grade 4, students are introduced to the concept that matter is conserved when mixtures are formed. In grade 5, students will then compare the properties of substances before and after they are combined into a solution and demonstrate that matter is

conserved in solutions. The materials content strands mirror the TEKS with the standard and units in which the TEKS are taught. In the strand Matter and Energy, Units 2-6, students first compare and contrast matter based on measurable properties, then demonstrate and explain that some mixtures maintain the physical properties of their substances. Following this, students compare the properties of substances before and after they are combined into a solution and demonstrate that matter is conserved in solutions.

- The Unit 10 *Teacher Background Information* podcast includes electrical and thermal insulator concepts students learned in grade 4. The podcast provides vertical alignment, and the students will learn about electrical energy and a summary of what components will be taught.
- In Unit 21, students revisit the phenomenon video from the previous day and reflect upon the behaviors and traits of turtle hatchlings they are observing. Students revisit this phenomenon comic as they expand their thinking to other animals who make their homes in the ocean. Students utilize their previously written student-driven questions, transferring their understanding of survival traits, in this case, from the turtle to research the orca whale.
- The materials in grade 5 include a horizontal alignment, allowing teachers to see the progression of the TEKS, including the recurring themes and concepts and scientific and engineering practices throughout the units within the grade level. For example, in grade 3, the Matter and Energy strand states that the student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. In Units 2-3, students compare and contrast matter, and in Unit 4, students demonstrate and explain that some mixtures maintain the physical properties of their substances. In Unit 5, students compare the properties of substances before and after combining into a solution to demonstrate that matter is conserved. The learning progression ends in Unit 6 when students illustrate how matter is made up of particles that are too small to be seen.

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

- Grade 5 materials scaffold learning in a way that allows for increasing conceptual understanding within each strand. For example, the “Vertical and Horizontal Alignment” document follows the horizontal alignment of the TEKS. In the strand Earth and Space, Unit 13, TEKS 5.10A materials have students first explain how the Sun and the ocean interact in the water cycle to affect weather. In Unit 14, TEKS 5.10B materials provide a lesson in which students model and describe the processes that led to the formation of sedimentary rocks and fossil fuels. In Unit 15, lessons supporting TEKS 5.10C guide students to model and identify how changes to the Earth's surface by wind, water, and ice result in the formation of landforms.
- Unit documents provide a “Transition” section at the beginning of and/or at the end of each unit that connects students’ previous learning to current learning objectives with increasing difficulty. For example, the Unit 2 “Transition” guides the teacher to explain to the students that in the next unit, students will use what they have learned about comparing and contrasting matter to investigate the materials used to build toys, and their features, and design a toy of their own.
- Units begin with a task to activate students' prior knowledge or to build background information. For example, in Unit 18, the lesson guide includes an optional vocabulary review and prior knowledge article, “Patterns in the Sky.” Phenomena materials include some language or support for the teacher, such as introductions or connection language in lessons, to guide student understanding of intentional sequencing of content.

- The materials show an intentional sequence to scaffold learning in a way that allows for increasingly deeper conceptual understanding. The student resource materials start with a visual representation of the phenomenon and then break down the concepts into chunks that build on the previous activity. For example, in Unit 7, Activity 2, Same Force includes observation of a tug-of-war. In Activity 3, A Different Force, students complete a spring scale investigation using the “Spring Scale Investigation Chart” before students answer the question, “What is the pattern of motion in the push system you created?” Activity 4, So Many Forces includes a student article on speed with questions. In Activity 5, Forces are Everywhere guides students to record information together in a chart matching the scenario to the equal or unequal force with an explanation.

Materials clearly and accurately present grade level specific core concepts, recurring themes and concepts, and science and engineering practices.

- Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices. For example, in Unit 8, Engineering Design: Runaway Trucks, the lesson plan includes the SEP and RTC addressed in the unit objectives to plan a simple experimental investigation and design a solution to an engineering problem by testing the forces acting on an object in a car ramp system, aligned to SEP 5.1B and TEKS 5.5B.
- The units follow a repeated pattern for instruction aligned to the 5E model. Each unit begins with the Engage component where after previewing the topic and vocabulary, students explore a specific RTC based on phenomena. On the following days, students engage in Explore and Elaborate cycles and the 5E cycle concludes with an Explanation and an additional optional Elaboration activity based on student needs. For example, in Unit 18, students engage in activities to activate prior knowledge and introduce the RTC for the week about the gray wolf population in Yellowstone National Park. Students engage in activities about the wolf food web, the transfer of matter and energy in food webs, and how wolves change their ecosystems. Materials provide an additional elaborate activity about Aldo Leopold, and the week concludes with a phenomenon explanation and evaluation.
- The materials include a clear and concise grade level scope and sequence document where the teacher gains an understanding of the sequence students will engage with all grade level concepts, SEPs, and RTCs. For example, in grade 5, the strand Organisms and Environments is spiraled into the RTC patterns, cycles, systems, and relationships within environments during Units 17-19. Materials continue the strand Organisms and Environments with lessons focusing on the changes organisms undergo and the structures which help them survive in their environments during Units 20-21.
- In Unit 16, Activity 4, Engineering Design: Plastic Problem-Solving, students read an article about cleaning up plastic waste on Corpus Christi beaches, aligned to TEKS 5.11A, design and explain solutions to minimize environmental impact. Information includes but is not limited to: "Texas has about 367 miles of shoreline, mostly covered in sandy beaches...However, the beach is a hot spot for plastic pollution...whole communities are getting involved...in 2021, communities worked together to collect a total of 58,671 pounds of trash."
- Materials introduce the weekly content using comic strips using real-world scenarios, videos, or student experiences as the phenomenon for each unit. The first activity in each unit requires students to study the phenomenon and ask questions. Activities that follow progress sequentially to help students make sense of the phenomenon through the integration of SEP and RTC.

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

- The horizontal alignment document of the materials clearly explains the mastery requirements of the student lessons, which are within the boundaries of the main concepts of the grade level. The materials content strands mirror the TEKS and units in which these TEKS are presented. Learning targets for units and weeks align with TEKS grade-level expectations. For example, in grade 5, Units 17-19, students learn to describe patterns, cycles, systems, and relationships within environments. The document illustrates the connection of TEKS 5.12A, B, and C with aligned student goals of observing and describing how a variety of organisms survive by interacting with biotic and abiotic factors, predicting how changes in the ecosystem affect the cycling of matter and flow of energy in a food web, describing a healthy ecosystem, and identifying how human activities can be beneficial or harmful to the ecosystem. In Unit 21, the Social Orca task includes student success criteria, stating, "I can analyze and explain why orcas hunt in groups." Students show mastery of this goal through their writing responses.
- Grade 5 materials include "Unit Assessment Answer Keys" containing the unit's SEP and RTC correlation to each question. For example, in Unit 5, questions 1-3 and 10 correlate with the SEP 5.1E, questions 1-10 correlate to the TEKS 5.6C, and questions 1-10 correlate with RTC 5.5E.
- Mastery requirements of the materials are within the boundaries of the main concepts of the grade level. For example, in Unit 9, the "Teacher Lesson Plan" includes formative assessments that provide students the opportunity to demonstrate mastery. These formative assessments are varied in products, including a self-assessment using the questioning rubric, investigation plans, Ins and Outs Energy: Exit Ticket, and a Unit Assessment.

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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 (RTC), and scientific and engineering practices (SEP). 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 materials in grade 5 include a horizontal alignment, allowing teachers to see the progression of the TEKS, including the recurring themes and concepts and scientific and engineering practices throughout the units within the grade level. For example, in grade 3, the Matter and Energy strand states that the student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The learning begins in Units 2 and 3 when students compare and contrast matter. The learning progresses in Unit 4 when students demonstrate and explain that some mixtures maintain the physical properties of their substances. The learning continues in Unit 5 when students compare the properties of substances before and after they are combined into a solution to demonstrate that matter is conserved in solutions. The learning progression ends in Unit 6 when students illustrate how particles that are too small to be seen create matter.
- Material support teachers in understanding vertical alignment. For example, the "Vertical Horizontal Alignment" chart is organized by the recurring theme and then lists the unit theme, what students should know and are expected to do, aligned spiraled concepts, new concepts, and vocabulary, and how these progress from kindergarten to grade 5.

- In the “Horizontal Alignment” document, the materials clearly explain the mastery requirements of the student lessons, which are within the boundaries of the main concepts of the grade level. For example, in grade 5, students learn to describe patterns, cycles, systems, and relationships within environments during Units 17, 18, and 19. The chart demonstrates the connection to TEKS 5.12A, B, and C, with aligned students goals for students to observe and describe how a variety of organisms survive by interacting with biotic and abiotic factors, predict how changes in the ecosystem affect the cycling of matter, flow of energy in a food web, and describe a healthy ecosystem and how human activities can be beneficial or harmful to the ecosystem. The chart also explains the SEP and RTC, which connect to these units, and the outcomes the students will master.
- The “Vertical and Horizontal Alignment” document includes information about how concepts taught in the materials are divided into strands that mirror those in the TEKS. TEKS and units are listed under grade levels to illustrate the progression of standards over time. For example, in grade 5, Unit 4 includes TEKS 5.6B. Students demonstrate and explain that some mixtures maintain the physical properties of their substances, such as iron filings and water, and investigate and compare mixtures and solutions composed of liquid and solid matter. This standard builds on grade 4 TEKS 4.6B, in which students investigate and compare mixtures and solutions composed of liquid and solid matter.

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 support the teacher and include explanations and examples of science concepts, including grade-level misconceptions. For example, in Unit 8, Engineering Design: Runaway Trucks, the *Topic Background Podcast* provides a common student misconception that an object at rest has no force, and that only movement is a sign of force.
- The unit lesson plan includes a Standards Coverage teacher chart that contains common misconceptions about the topic. For example, in Unit 17, Wolves and Webs, the teacher prepares to support the following student misconceptions, "Arrows in a food chain or food web model point to what organisms eat, the sun is food for plants, plants get their food from the soil, and matter disappears when an organism dies."
- The materials include a teacher resource, *Common Misconceptions* in the unit, and weekly guidance documents to help recognize possible barriers to student learning. In Unit 15, There is No U in Texas, teachers learn about common misconceptions such as erosion and weathering being the same process and that changes to the Earth’s surface are always fast.
- The unit documents include Lesson Guides providing support for teacher facilitation of the activities. The Standards Coverage chart includes a “Misconception” section to guide the teacher on misconceptions to clarify.

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

- The materials explain the intent and purpose of the instructional design of the program. For example, in the *What's New-Explore Science 3-5 National Webinar*, the speaker explains how the framework of the curriculum and the 5E model helps teachers guide students through the concepts, shifting from direct instruction toward inquiry.
- The Teacher Edition includes a *Science Weekly Grades 2-5* resource to gain an understanding of the intent and purpose of the instructional design of the materials. The document provides an

understanding of how the materials help students gain an understanding of science content while integrating Reading/Language Arts (RLA) and math standards. The guide explains the structure of the curriculum and student edition weekly readers, which support the 5E model of instruction. The introduction guide highlights other benefits of the instructional materials, including three-dimensional learning with SEP, RTC, and TEKS integration into science lessons and assessments.

The Teacher Edition Publication Resources section includes the document “Texas Science: 2nd-5th Grades,” providing a detailed explanation of the intent and purposes of the instructional design of the materials. For example, in the section “Additional Highlights, Instructional Design,” teachers access information including but not limited to the following: "Texas Science is built upon the principles of the Framework for K-12 Science Education, published by the National Research Council. This curriculum supports Three-Dimensional Learning. 3D Learning means that the Scientific and Engineering Practices, Recurring Themes and Concepts, and TEKS content are integrated into lesson plans when teaching science." The materials contain further details about formulating hypotheses, standards coverage, and student-led inquiry are integrated into the materials. Additionally, the “Core Components Description” document describes each component of the Texas Science program.

Studies Weekly Texas Science Grade 5

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.

- The materials support students' meaningful sensemaking through various modalities with the integration of the 5E Model and Student-Driven Inquiry. In Grade 5, Unit 18, a student-inquiry activity uses evidence and reasoning from a food chain and food webs to connect to a phenomenon about wolves' impact on the Yellowstone ecosystem. The materials provide opportunities for students to predict how matter and energy flow and cycle through an ecosystem and make claims based on evidence gathered from models. Students then make their own *Matter Model,* including living and nonliving components. Students discuss, revise, and use articles to create a 3D pyramid model of the wolf's ecosystem.
- In Unit 1, Activity 1, *Who Are Scientists and Engineers?* the materials provide resources for students to understand sensemaking as a goal of science. Students listen to a text explaining a definition of sensemaking, including ideas that scientists are curious, explore the world around them through investigations, are inquisitive, and want to learn more. Students complete

sentence stems, open response questions, and complete tasks such as, "Draw a picture of yourself as a specific type of scientist or engineer."

- Units of instruction begin as students engage with phenomena and form a hypothesis to investigate. For example, in Unit 4, *Magnetic Powers*, the phenomenon asks students if the properties of iron filing change when they are mixed with other substances. Students work together to ask questions and discuss their thinking through a “Student-Driven Question Board.” Students use these questions to investigate and test their hypotheses. Students read an article and highlight evidence to decide if iron filings can be identified as a metal. The students use the information gathered to explain the phenomenon of how iron filings maintain their properties when mixed with other substances.
- The materials support students' sensemaking by acting as scientists and engineers. In Unit 13, Activity 7, the “Student-Driven Inquiry,” gives students the opportunity to view an image and make observations based on what they have learned in the previous lessons from the unit. The material gives teachers questions to guide student thinking, such as, "What do all these prairie animals have in common? What do we call animals that are eaten by predators? Would a prairie dog be considered a predator or prey? Which question would help us collect evidence about how predators interact with abiotic and biotic factors to survive and to promote stability in a healthy prairie ecosystem?"

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 embedded non-fiction articles within the activities for students to read and interact with for a deeper understanding of the content. Students answer questions, reflect, and connect using evidence from the article. For example, in Unit 5, Activity 2, *South Padre Island*, the material instructs students to read the article and answer questions, engaging the senses and working with a partner to provide evidence from the article. An additional example includes Unit 9, *Energy Transformations,* in which students highlight evidence from an article focusing on supporting or refuting a claim previously written by students.
- The student materials for Unit 2 include a short passage, “Solubility Patterns.” This article provides examples of some patterns observed as students investigated various solutions. Students write a summary of the investigation, applying what they read in the passage to summarize the patterns observed.
- Materials include pre-reading and vocabulary review before lessons via Prior Knowledge Articles and optional vocabulary cards. Unit 19, *The Dead Zone,* focuses on TEKS 5.12C, and how human activities can benefit or harm an ecosystem. Teachers access a Prior Knowledge article for the unit to review vocabulary such as *fossils, organisms,* and *extinct* to support students’ understanding of how fossils relate to the study of ecosystems over time.

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 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. Student materials include visuals such as diagrams or models representing skills students will later encounter within the learning cycle. For example, in Unit 21, Activity 2,

Traits We Just Know, materials include eight pictures of organisms for student observation. Students use the images to answer questions such as, "What patterns do you see in the organisms' behaviors and traits?" and "How do the organisms' behaviors and traits increase their chances of survival?"

- Unit materials provide multiple opportunities for students to write responses related to scientific concepts and engineering processes. In Unit 11, Activity 2, *Light Interactions*, students demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed. Students investigate how light travels using a candle, a flashlight, and a CD, then make predictions and record observations on a graphic organizer. In Unit 15, Activity 3, students view an image of the Mississippi River Delta and draw a two-panel model to show the effect of water on the formation of the landform over time.
- Materials provide multiple opportunities for students to engage in various written and graphic modes of communication. In Unit 12, Activity 2, *Chalk Shadows*, students collect evidence of the causes and effects of shadows over the course of the day. Students record their observations in a data table and create a graph titled *"Shadow Length at Different Times of Day."* In Grade 5, Unit 20, *Built for Desert Life*, *Hot, and Cold!* students use a bar graph to analyze average temperature data in the Chihuahuan Desert, complete a scatter plot, and answer corresponding questions.

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.

- 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. In Unit 13, Activity 5, *Phenomenon Explanation Discussion Preparation,* students use their initial ideas to a guiding question and reflect on how their thinking has changed. The material includes a word list for students to use in a Final Explanation that directs students to incorporate new ideas from the classroom discussions and notes to improve the explanation of the phenomenon.
- Materials include support for students to think like a scientist or engineers as they look through a lens of patterns. For example, in Unit 6, Activity 4, the teacher's lesson plan guides the teacher to support students with documenting evidence of tracking wolf population changes and identifying the cause of the change. The lesson plan explains how the teacher can spur students to think as a scientist, "If students struggle to analyze the data and mathematical relationships to connect and communicate mathematical ideas use the following questions to scaffold learning: What operation would help you solve the problem: add, subtract, multiply, or divide? What data can you use from the graphs to solve the problem / answer the question? How can estimation help you determine a solution?"
- Materials include resources for students to engage with phenomena in the form of comics. After reading the comic, teachers guide students to ask questions about the situation they have read using the Phenomenon Questioning Technique. Students begin each unit by thinking of their own thoughts and questions about natural phenomena and then record their questions on the "Asking Phenomenon Questions" printable. Both tools are transferable to any situation and allow students to develop scientific habits of mind over time. Materials encourage students to write down all questions without judgment, discuss, and select the most interesting question.

Materials include multiple opportunities for students to define problems and create solutions using a consistent process of Define, Ideate, Develop, Test, and Optimize. In Unit 3, *Ruff Toy Materials*, students

consider the physical properties of different types of materials and work with partners and groups to create a durable toy to entertain a dog. Students engage in a planning and creation process, including improving upon their original design through testing and collaboration. The materials give students time over a two-week period to fully explore, improve, and communicate their findings. In addition, in Unit 16, Activity 6, *Engineering Design: Plastic Problem-Solving*, students read a text about Austin citizens wanting to create a community garden. Students identify the problem, criteria, and constraints of the topic and design a plan to solve the problem of harvesting water in an area that is prone to droughts and without easy access to city water.

Studies Weekly Texas Science Grade 5

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 to 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.

The 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/or verbal arguments that justify explanations to phenomena and 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.

- Materials prompt students to use evidence to support their hypotheses and claims. For example, at the beginning of each unit, students read a comic strip as an introduction to a phenomenon and create a hypothesis from the questions they find most interesting. The rest of the units' activities provide students with evidence that may or may not support their hypothesis. Students complete each activity and consider the evidence they gathered and how it may impact their hypothesis. For example, in grade 5, students hypothesize about the impact of plastic on Earth's environment and resources and create a solution to this problem. As students research the topic and increase their understanding of the phenomenon, they revise their designed solutions. Students include an explanation of the causes and effects of pollution as evidence. Students are encouraged to share their plans with the appropriate agencies within their community.
- Materials prompt students to use evidence to support their hypotheses and claims. For example, in Unit 11, Activity 4, students collect evidence on how light travels and can be reflected, refracted, or absorbed, as specified in the TEKS. Students view images of how light interacts with a prism and on the glass walls of a skyscraper, then record a prediction of what will happen when it reflects off a mirror. Students then work in groups to complete a hands-on

activity by reflecting light off a mirror using a flashlight and using protractors to measure the angle at which the ray of light hits the mirror and reflects off the mirror. Students record their measurements on a provided graphic organizer in their student editions. After the investigation, students analyze and record patterns they noticed from the data collected and write a response to the question, "Use data, evidence, and observations from the investigation to explain how your discoveries support or refute your prediction."

- Materials provide resources to prompt students to use their evidence. For example, in Unit 19, Activity 5, “Phenomenon Explanation,” students revisit their predictions from the beginning of the unit about why there is a Dead Zone in the Gulf of Mexico. Students write a response to the question, "How have your initial ideas and claims about the phenomenon changed with new evidence? How would you make sense of the phenomenon now? Support your explanation with evidence and reasoning. Be sure to use the following terms in your explanation: ecosystem, impact, dead zone, change." In Unit 4, Activity 4, students complete an “Exit Ticket” as a formative assessment to demonstrate mastery by using evidence to prove or disprove the statement, “Mixing substances always results in a change in their physical properties.” Finally, in Unit 13, Activity 3, the “Collaborative Learning” prompts teachers to "encourage students to say, " I agree/disagree with [name] because [claim, evidence, or reason]." In Unit 13, Activity 5, “Independent Work” guides teachers to have students adjust their final explanations for the phenomenon based on the classroom discussion and their notes.

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

- The *Introduction to Texas Science- 2nd-5th Grades* includes the supports for introducing vocabulary terms that are embedded into the teacher materials. The guide states, “Texas Science strives to follow a disaggregated approach to vocabulary. This means that students grapple with the science concepts before introducing new science vocabulary." The guide outlines the intentional structures that support students to learn terms in their own language or vernacular before teaching them in scientific, academic language. After this, lessons give students time to practice the terms in context to lower the cognitive load and increase accessibility for all students. The guide gives an example of the phenomenon of comics at the beginning of the units to allow students to access the concepts in a format more accessible to most students than a traditional article or other academic text.
- Materials in the “ELD Teacher Edition” include a picture walk of the new vocabulary, which guides the teacher to place labels in specific parts of the picture and discusses new vocabulary. For example, in Unit 12, *Patterns in the Sky*, a vocabulary slide shows a girl standing on a sidewalk looking at her shadow. The teacher places the word *shadow* next to the shadow, the word *length* next to the head of the shadow, and the word *direction* next to the girl’s feet. The teacher places the complete sentence using all three vocabulary words, “The length and direction of a shadow depend on where the light is.” as a caption under the image.
- Materials include embedded opportunities to develop and utilize scientific vocabulary in context. **I**n Unit 15, Activity 10, students complete a landform poster walk in which they look at various visuals and write an explanation of how wind, water, or ice results in the formation of the landform. Students then draw a model of the formation of a U-shaped valley using vocabulary terms such as *glacier, erosion,* and *U-shaped valley.* Students apply their learning throughout the unit to the “Applied Science Writing” task as they describe a landform they have visited or seen and how its formation was affected by wind, water, or ice. An additional example from Unit 13 includes a video for students to review the academic language for the unit. Materials include embedded opportunities to develop and utilize scientific vocabulary, such as

how the “Phenomenon Explanation” in Activity 5 directs learners to answer the questions "How have your initial ideas and claims about the phenomenon changed with new evidence? How would you make sense of the phenomenon now? Support your explanation with evidence and reasoning. Be sure to include the following words in your explanation: *interact, sun, ocean, precipitation, evaporation, heat*."

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

- Materials include various opportunities for students to discuss, debate, and justify their thinking to support the development of content knowledge and skills appropriate to the grade level. For example, in Unit 18, Activity 5, students engage in a student-led discussion as they respond to questions from the student weekly edition and work with a cooperative learning group to discuss the phenomenon of how the food web was impacted by introducing wolves in Yellowstone park and what may have caused their change in thinking during the week. In Unit 6, Activity 6 guides teachers in facilitating a class discussion based on the anecdotal and observational data gathered throughout the week. The lesson plan includes questions for the teacher to continue to facilitate the discussion, including, "How would you make sense of the phenomenon now? Support your explanation with evidence and reasoning," and "What could you include in your model to show this evidence/process /concept?" The lesson plan also encourages students to respond to one another with evidence using stems such as, "This comment has made me rethink my ideas because [claim, evidence, or reasoning]."
- The materials integrate argumentation and discourse to support students’ development. For example, in grade 5, Unit 1 introduces scientific and engineering practices (SEP). Activity 5 provides an explanation of what an argument is and how scientists and engineers use arguments to explain and communicate their explanations and solutions. Students read that scientists and engineers come up with arguments for their explanation of a phenomenon, which is a written claim backed up by evidence and reasoning and is an irreplaceable piece of inquiry in science. In Unit 1, Activity 5, teachers review the experimental design and lead students to understand how this connects to a claim, evidence, and reasoning. Teachers define an argument as a written claim backed by evidence and reasoning, as opposed to a disagreement in the lesson. Then, students read an article in the student edition giving more information about what an argument is. Students work in groups to write an explanation of their experiment using the “Create An Argument” printable.
- In Unit 19, Activity 4, students write a persuasive letter to the Conservation Fund describing how the Dead Zone in the Gulf of Mexico is a problem for the overall ocean ecosystem and outlining two specific strategies that could help prevent the Dead Zone. Students argue for how the Conservation Fund could use these strategies and may use ideas from a prior discussion to do so. After writing, students share letters with a partner.
- Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. For example, in Unit 12, Activity 5, students explain and demonstrate the effects of shadows changing throughout the day. The teacher encourages the students to respond to their peers’ ideas using sentence stems such as, “I agree/disagree with (name) because (cite claim, evidence, or reason).” and “This comment has made me rethink my ideas because (cite claim, evidence, or reason.” Unit 9, Activity 3 includes student guidance such as "Discuss: How would you describe the change you saw?" and teacher guidance such as, "Say: In science, when two substances

combine and change into a new substance, it is called a chemical reaction." Students record this term in their student editions.

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

- Materials provide opportunities for students to construct and present developmentally appropriate verbal arguments that justify explanations of phenomena and solutions to problems using evidence-acquired learning experiences. For example, in Unit 2, Activity 10, students share the Claim, Evidence, and Reasoning they wrote during the unit with a partner or small group. Students engage in a discussion or debate using structured protocols and sentence stems. For example, "Respond to your peer's ideas using sentences such as a-I Agree/ Disagree with [name] because [claim, evidence, or reasoning]." After the debate, students incorporate ideas or revisions to their ideas based on the evidence and reasoning shared by others into their plan. In the final activity, Activity 11, students draft a final explanation. First, they consider their initial hypothesis about the guiding question and phenomenon. Then, students draw a model to explain the phenomenon, including evidence and discoveries made during the week. The student edition prompts students to include evidence and reasoning from their investigations in their final explanation as well. Students also write about a time in their homes, neighborhoods, or schools when they could detect particles of matter that were too small to be seen.
- Throughout the program, students begin each unit with phenomena that they then proceed to investigate through related experiments and engineering design processes. At the culmination of each unit, students revisit their initial thoughts on the phenomena to give a revised explanation of their thinking, based on what they have learned during the unit. For example, in Unit 7, Activity 7, students write a response to the question, "How have your initial ideas and claims about the phenomenon changed with new evidence? Support your explanation with evidence and reasoning...Why did the offensive line and defensive line come to a standstill after the ball was hiked? Why was the offensive line eventually able to push over the defensive line?"
- Unit materials provide opportunities for verbal arguments that justify explanations of phenomena and solutions to problems. For example, in Unit 20, students learn about the structures and functions of organisms that help them survive in the desert. In Activity 3, students read the article “Does it Rain in the Desert?” and collect evidence from the article to make a prediction. Students write to explain the specific structures they think organisms need to survive in the Chihuahuan Desert.

Materials provide opportunities for students to construct and present developmentally appropriate written and/or verbal arguments that justify explanations of phenomena and solutions to problems using evidence acquired from learning experiences. For example, Unit 9 Activity 5 “*Applied Science Writing”* instructs students to "identify and write about a system in your home, school, or community that shows energy transformation. Describe the energy transformation and provide observable evidence to support your description."

Studies Weekly Texas Science Grade 5

Indicator 5.2

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

1	Materials provide teacher guidance on anticipating student responses and the use of 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 provide teacher guidance on anticipating student responses and the use of 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 provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking.

- The teacher's lesson plan includes possible student responses in specialized fonts that are easy to see. For example, in Unit 15, Weeks 23-24, Activity 3 includes a whole group demonstration at a stream table. As the students observe the model, they discuss, "What are some advantages of this model that you can identify?" The lesson guide includes potential student responses in red font, "Answers may vary. Example: It is a much smaller size, so we can see the whole thing. We don't have to travel somewhere to see it. It happens faster, so we can see the process all at once." In Unit 11, Week 19, Activity 3, students collect evidence from an investigation to model how light interacts with objects. Teacher guidance directs teachers with using the Student-Driven Inquiry process by providing discussion questions such as, "How do you predict the light will interact with the book?" Materials then provide possible student answers such as, "Predictions may vary. Examples: The light will hit the book. The light will shine through. The light will bounce back."
- The materials provide teacher responses to possible students' responses, including how to build on students' thinking within the unit lesson plans. Materials include potential student responses to guide the teacher with answers students may give, which are correct, incorrect, or partially correct. For example, in Unit 10, Activity 4, students engage in a discussion after a circuit

investigation. The teacher asks students, "What would be the result of a closed circuit with a light bulb as the load?" The materials provide the following partial correct answer choice, "The wires would be connected without a break." With these responses, the teacher can then build on students' thinking or redirect them to ensure they are ready to access the next activity.

- Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. For example, in Unit 8, Activity 2, *Engineering Design: Runaway Trucks,* students read an article about patterns in materials and designs used in current runaway truck ramps. Students work with a partner to summarize the information by explaining the two types of runaway ramps described in the article. The materials provide teachers with questions such as “What relevant ideas did you see that could be applied to our engineering problem?” and possible student responses listing different materials and ramp styles. To further support student discourse, teachers ask, “Based on our criteria and constraints, which solution do you think would be best to use for our simple experimental investigation?” and possible student response includes inclined or flat runaway ramps. Materials suggest that if students struggle to decide, teachers may remind them to look back at the *Runaway Trucks: Criteria and Constraints* printable.
- Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. Unit 5, “*Independent Work,”* provides teacher support such as, "As you circulate, use the following questions to scaffold learning and deepen thinking: a. What patterns can you identify about the properties of the salt and sugar after they are mixed with water? (Possible student answer: The salt and sugar were both conserved when dissolved in the water.) b. What was the effect of mixing the sugar into the water? (Possible student answer: The sugar dissolves in the water, so you cannot see it.)” Later in Unit 5, “Reflect and Connect” suggests the teacher leads a discussion with the students, "Was the salt conserved in the water when the two substances were mixed together? How do you know?" The materials include a possible student answer, "Yes; the salt is present in the water solution because the weight of the salt did not change after it was combined with the water. We know the salt was 17 grams and the water was 110 grams. When the two substances were combined, the weight of each was still present, equalling a total of 127 grams. Therefore, the weight of the salt was conserved, or remained the same, in the water."

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

- Embedded within the lessons are various supports to help the teacher scaffold and support student development of scientific vocabulary in context. For example, the “Core Components Descriptions (Grades K-5)” document explains the various resources within the materials that support the teacher with scaffolding and supporting development of grade-level vocabulary, including word wall cards, flashcards, and resources designed to break down vocabulary for English Language Development (ELD), such as slides to explain terms, close reading texts, and application discussion stems. In addition, in Unit 7, Week 13, students review the terms *cause, effect, evidence,* and *force.* Additional support is also provided for new and abstract terms such as *equal* and *unequal force*, such as word wall cards, flashcards, slides to explain terms, close reading texts, and application discussion stems.
- Lessons include teacher guidance to assist students in using new vocabulary. In Unit 11, Activity 3, students observe how light interacts with objects. Teacher guidance directs teachers with a vocabulary icon and suggests teacher directions such as, "Say: One of our observations was that an object may block light. In science, we describe this as some objects absorb light, different

materials absorb light, and absorption is when light is taken in by the object it hits." In Unit 17, “Vocabulary” provides teacher guidance such as, "Say: In science, a thing that is nonliving, such as a rock or air, is called abiotic. Say: In science, a plant or animal that is living, such as a bobcat or sunflower, or something that comes from a living thing, such as a seed is called biotic." Meanwhile, the students are working on their “Classification Challenge: Sorting Cards” activity.

- Materials include an “ELD Teacher Edition” to support students’ development and use of scientific vocabulary in context. A slide presentation picture-walk of the new vocabulary guides the teacher to place labels on specific parts of the picture and discuss the new vocabulary. For example, in grade 5, Unit 20, *Patterns in the Sky*, a vocabulary slide shows a girl standing on a sidewalk looking at her shadow. Teachers place the word *shadow* next to the shadow, the word *length* next to the head of the shadow, and the word *direction* next to the girl’s feet. The teacher places the complete sentence using all three vocabulary words, “The length and direction of a shadow depend on where the light is,” as a caption under the image.

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 guidance for student discourse. For example, the *Introduction to Texas Science-2nd-5th Grades* resource provides teachers with guidance for developing student questions. The summary outlines how each unit begins with students studying the phenomenon and then generating questions about the topic. The guide provides a ‘Phenomenon Questioning Technique’ document that supports the teacher to build students' questions throughout the year.
- Teacher lesson guides provide routines and scaffolds as students construct written and verbal claims. In Unit 11, Activity 3, students write a response to the question, "How do the discoveries you made about how light interacts with objects help you make sense of the phenomenon?" Teachers guide students in discussing their responses while still allowing for student thinking with verbiage such as, "What new evidence did this activity provide to help us make sense of the phenomenon and possibly revise our hypothesis?"
- Materials provide guidance that teachers can use to provide feedback to students while engaging in discourse. For example, in Grade 5, Unit 16 provides a “Plastic Problem Solving Answer Key” guiding teacher feedback on the formative assessment. If students struggle to complete the formative assessment at proficiency level, the teacher asks a set of questions orally and sequentially. Then, teachers direct students to go back and revise their responses in the student edition. An additional example includes Unit 5, “Reading to Learn,” which directs teachers to "encourage students to respond to their peers' ideas, using sentence stems, such as, “a. I agree/disagree with [name] because [claim, evidence, or reason], b. This comment has made me rethink my ideas because [claim, evidence, or reason]."

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

- Teacher lesson guides provide routines and scaffolds as students share their thinking. Materials include the “Discussion Expectations” document and a teacher resource to explain and model expectations for discussion. This resource includes tips about giving others time to share, how to take notes about others' ideas, using various language and vocabulary from the lesson, and using stems to respond to others, such as, "I am going to include [claim, evidence, or reasoning] in my final explanation because [reason]." For example, in Unit 15, Activity 10, students work in

collaborative groups to identify landforms, agents, and processes of change in photos. Teachers encourage students to use their tools as they work, write explanations, and offer feedback to each other. Teachers facilitate respectful scientific discourse by providing sentence stems such as: "This comment made me rethink my ideas because (claim, evidence, or reason)."

- Grade 5 materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions. For example, in grade 5, Unit 12, after students have conducted their shadow investigation, materials prompt teachers to pair students to analyze their data, identify any features, patterns, and cause-and-effect relationships, and share their findings in small groups. The materials also include a questioning rubric to assist teacher instruction in student questioning and discussions aligned to the investigation focus. Teachers may post it as a reference for students across multiple units. The rubric includes descriptors for a Level 1-4 question. For example, in grade 5, Level 1 includes, "I did not participate." while Level 4 includes, "I asked as many questions as I could think of and encouraged my group members. I even revised and improved my questions from feedback."
- Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions. In Unit 5, “Reading to Learn” instructs teachers to "have students read the ‘Matter is Conserved’ article in their student editions as a whole group. Then, engage students in a discussion." The material provides discussion questions and possible student responses, such as, "Why are energy and matter conserved in a natural system? (Possible student response: The amount of particles in each substance stays the same; the particles are simply rearranged into another type of matter.) and “What is an example of a natural system you know that represents a conservation of matter? (Answers may vary but could include mixing ingredients to make bread dough, etc.)"

Studies Weekly Texas Science Grade 5

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 a variety of 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 a variety of formats.

- Materials include a range of diagnostic, formative, and summative assessments that include formal and informal opportunities to assess student learning in a variety of formats, described in the “Core Components Descriptions (Grades K-5)” document. This resource describes the various assessment types for each unit, such as formative assessments, performance tasks, comprehension reading assessments, and summative unit assessments. For example, the assessment types are explained in the “Teacher's Lesson Plans” for each unit, including formative assessments. In the online student tools, teachers can enable the students to complete all assessment types, both formal and informal, in the online format. The Core Components Descriptions also include a visual example of the assessments as well as an assessment map for each unit.
- Materials include a range of assessments in a variety of formats. For example, the unit and weekly teacher guidance documents include a chart showing unit activities, success criteria, and formative assessment evidence. For example, in Unit 11, Activity 5, students collect evidence through an investigation of the properties of light to explain the effects of refraction. After students observe how objects appear differently through different lenses, teachers evaluate students' written responses to the question, "Why do you think this happened?" to assess their

understanding of the concept. Because this activity occurs before the end of the unit, teachers have a chance to monitor and adjust instruction for students who don't meet success criteria. The unit materials also provide summative assessments for unit content as well as a performance task. Questions on the Content Assessment measure student knowledge of RTC include Cause and Effect with questions such as, "Describe the cause of the effect shown here." During the performance task, students demonstrate knowledge of unit vocabulary, read a scenario, analyze data, and explain their reasoning for a solution. To complete the summative assessment, students explain their reasoning after viewing an image, "Which tube will allow the light to be seen and why?"

- The materials include a variety of formal assessment types including performance tasks, reading comprehension assessment, and a summative unit assessment. Assessments are available in a variety of formats, including online or printed copies. For example, in Unit 17, materials include a Reading Comprehension Assessment about bison that students respond to after reading the article. In the Unit Assessment for Unit 17, the different question types give the teacher various ways to analyze multiple dimensions of the student learning, including multiple-choice questions, true and false questions, a sorting task, and short answer question types. The short answer questions include the application of learning into a real-world scenario and the application of SEP and RTC. Also included are Performance Tasks, a Summative Assessment that gives students the opportunity to apply what they have learned to a novel situation and allows students to demonstrate understanding through application.
- Materials include a range of assessments in a variety of formats. For example, in Unit 13, Activity 3, the “Lesson Guide” instructs teachers to use students' predictions and reasoning to check for proficiency in the success criteria and include exit tickets that instruct students to select all answers that apply. Formal assessments for Unit 3 include the “Ruff Toy Materials Reading Comprehension” and “Ruff Toy Materials Performance Task Assessments.” Informal assessments include written responses for Activities 1, 3-6, and 8-10, a graphic organizer for Activity 2, and a student artifact for Activity 7.

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

- The materials provide a “Texas Science Scope and Sequence” document that shows TEKS correlation for each unit so teachers know where and when TEKS are assessed. Because every unit contains both formative and summative assessments, this reflects assessment for all grade 4 science TEKS.
- Materials assess all student expectations and indicate which student expectations are assessed. For example, the materials provide a “*Citation to the TEKS and ELPS for Studies Weekly”* document that shows TEKS correlation for formal, informal, formative, and summative assessments throughout each unit, indicating where and when each student expectation will be assessed. Unit lesson plans include resources that indicate the content, SEP, RTC, and other content area standards, such as reading/language arts or math, which the unit addresses. Within the activity lesson plan, aligned RTC SEP and ELPS are listed. The chart includes evidence for all assessed standards during the school year. In addition, the “Unit Assessment Answer Keys” provide an “Assessment Map” listing the science standards covered in that unit.
- Materials assess all student expectations and indicate which student expectations are assessed. For example, the Unit 13 Assessment Map indicates that SEP 1G Develop and Use Models is addressed in Task 2A, SEP 2D Evaluate Designs is addressed in Task 2B, SEP 3A Develop

Explanations and Purpose Solutions is addressed in Tasks 1, 2A, 3A, and 3B. The RTC that are listed include RTC 5B Cause and Effect, addressed in Tasks 1, 2A, 2B, 3A, and 3B.

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

- Materials included assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. For example, the unit assessments and performance assessments include an Assessment Map that contains a list of the Science and Engineering Practices (SEP) and Recurring Themes and Concepts (RTC) covered within the task. For example, grade 5, Unit 4, addresses the RTC Patterns and the SEP Analyze Data. Students study unchanging properties by following a recipe to create slime. Students read the article "Doctors in Texas Uses Magnets in Surgeries" and identify a pattern relating to the property of magnetism. An additional example includes Unit 19, Activity 5, "Phenomenon Explanation," in which student tasks integrate SEP of Develop Explanations with the RTC of Stability and Change as they describe how humans have caused instability in an ecosystem. Teachers evaluate student responses to this final activity of the unit as a formative assessment.
- Materials included assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. The informal assessments include opportunities for the teacher to analyze student understanding of the SEP and RTC. For example, in Unit 3, Activity 9 addresses SEP of Plan and Conduct Investigations, Collect Evidence, Collect and Organize Data, Develop and Use Models, and Evaluate Designs. The activity also supports RTC of Cause and Effect, Stability and Change, Systems and System Models. The informal formative assessment is when the teacher evaluates student responses to check for the proficiency of the success criteria. The teacher refers to the "Test" section of the "Engineering Design Rubric" in the "Ruff Toy Materials" answer keys for guidance.
- Materials included assessments that integrate scientific concepts and scientific concepts and science and engineering practices with recurring themes and concepts. Unit 21, Activity 2 directs students to complete a series of tasks aligned with the listed SEP Communicate Explanations and RTC Patterns. Students are asked to observe organisms in the activity images and, for each organism, analyze its behaviors and traits portrayed by the image. The teacher then asks the students to think about the similarities between the organisms' behaviors and traits, discuss their ideas with group members, and answer activity questions that follow.

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

- Students apply their learning from each unit to novel stimuli during summative assessments. In Unit 7, students complete the summative performance task Force of the Athlete to demonstrate their knowledge of TEKS 5.7A. Students view and read various scenarios with images, identify and explain the force (equal or unequal), and explain the pattern of motion. In Unit 19, students complete the summative performance task, The Dead Zone, to demonstrate their knowledge of TEKS 5.12C. Students analyze images to determine whether humans benefit or harm various ecosystems and explain why. These are novel tasks that differ from those in the unit materials.
- Each unit includes a performance task that allows students to apply what they have learned to a novel context. For example, in Grade 5, Unit 4, students read a comic where an alien is creating soup. The alien discovers that he has made a mistake in the recipe and asks the students to help him take his soup apart so that he can try again. The students work to separate the soup mixture to demonstrate that the ingredients maintained their physical properties.

- The materials include performance tasks for application in a novel context. For example, in Unit 7, students demonstrate their ability to investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy and breakouts, TEKS 5.7A. There are three task options for students to demonstrate understanding in partners. Task 1 includes various examples of energy force using images of a weightlifter, a shot putter, a swimmer, a rock climber, a track runner, and a race driver. Students then match the type of force seen in the image to the terms such as *motion, push, pull, friction, gravity, and weight.* In Task 2, students read a scenario to identify the force that is applied and write a response supporting their answer. Scenarios include situations such as Michael Phelps swimming at a 200m butterfly event, a skateboarder waiting at the top of the halfpipe ramp, a basketball sitting on the court, and someone riding a bicycle to catch up to someone else. Task 3 includes an image of a soccer player kicking a ball and asks students to answer various questions about the energy that is transferred in the scenario.
- Each unit includes a Performance Task that allows students to apply what they have learned to a novel context. For example, in grade 5, Unit 16, students design and explain solutions to improper trash disposal or recycling. Students create a sales pitch consisting of an advertisement and a commercial of their solution to the problem. Unit 17, Extension Activities, “Survival on the Prairie,” directs students to explain and elaborate on the invasive species, the European Starling. The directions inform the students to use the 'wanted’ poster resource for important information. Teachers then review the information students will need to research and provide them time to research online and to use library books.

Studies Weekly Texas Science Grade 5

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 provide guidance for evaluating student responses.	M
2	Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level.	PM
3	Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension.	M
4	Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.	PM

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

Materials include information and/or resources that provide guidance for evaluating student responses.

- Materials include information and/or resources that provide guidance for evaluating student responses. The "Core Components" document describes the unit answer keys as "A teacher tool that provides teacher guidance, support, and suggestions for student work in the student editions as well as the formative assessment." The unit assessment answer keys include the correct or approximate responses for open-ended responses to support the teacher with scoring and include links to rubrics for the teacher to check the understanding and proficiency of formative assessments. The unit answer keys also include the correct responses to open-ended or short answer responses in the student editions for each unit in a specialized font. Formative assessment activities are labeled to direct teacher attention to opportunities for evaluation. Included in the unit answer keys are the Rubric for Phenomenon Explanation and General Formative Assessment Rubric, which gives teachers further information to determine whether students are meeting success criteria.
- Each unit of the materials provides guidance for teachers in evaluating student responses via provided rubrics. All answer keys are clearly structured with a chart depicting the activity number and name, teacher questions in black print, and answers or possible suggested student answers in bold red print. Formative assessment activities are labeled to direct teacher

attention to opportunities for evaluation. Included in the unit answer keys are the Rubric for Phenomenon Explanation and the General Formative Assessment Rubric, which gives teachers further information to determine whether students are meeting success criteria.

- Materials include information and/or resources that provide guidance for evaluating student responses. For example, in Unit 15, Activity 1, students use a rubric to self-assess their questions and responses. Teachers and students assess proficiency according to descriptors from 1, Below Proficient: "I did not participate," to 4, Above Proficiency: "I asked as many questions as I could think of and encouraged my group members. I even revised and improved my questions from feedback." Additional examples include the Unit 5 *Magical Mixing Matter, which* includes a *Phenomenon Explanation Rubric* guiding assessing students' responses from 1 (Beginning: Does Not Meet Expectations) to 4 (Advanced: Exceeds Expectations) on the skills Explanations, Evidence, Reasoning, and Mechanics. For example, the difference between scoring a one on evidence includes, "identifies evidence from articles, lessons, and activities that support an explanation or claim with guidance." and scoring a four on evidence, " Applies scientific reasoning to support why the evidence is adequate for the explanation or claim."

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

- The materials provide limited guidance for report use, including teacher support for analysis of reports and limited teacher support for printed assessments. For example, the teacher *Reports* video gives guidance on how to navigate and access the weekly assessment reports and weekly progress reports to analyze student achievement and progress. Teachers have access to a line graph that demonstrates students' weekly assessment scores and comprehension progress; however, the materials lack significant guidance and direction to respond to individual students' needs.
- The materials provide limited guidance for report use, including teacher support for analysis of reports and limited teacher support for printed assessments. For example, for students who complete the assessments using paper and pencil, the materials lack any tools for the teacher to analyze data trends or patterns or plan for instructional responses. The materials lack any evidence of tools to support PLC or data analysis across the grade level.
- Materials provide a variety of reports to show student level of mastery of the content and success criteria but lack guidance and direction for teachers to respond to individual student's needs in all areas of science, based on measures of student progress appropriate for the developmental level. For example, teachers can access reports via the program's online data management system. Teachers view Weekly Assessments by class, student, and student responses, Weekly Progress Reports, Customized Content Reports, and Classroom Reports to view average assessment scores. Data is presented both in graph and list form. Teachers can also monitor whether students have started, not started, or finished articles and activities. The materials also provide a training video, *Reports,* to familiarize teachers with available reports and ways of viewing student data and progress. With all of this valuable data, the materials lack guidance and direction for teachers on how to use this data to respond to individual students' needs.
- Materials provide some guidance to support teachers with analyzing formative assessment data and student understanding. For example, the Unit 17, Activity 4 teacher edition includes probable responses, and some lessons include guidance for the teacher about how to use guided questioning or small group instruction to respond to students who only demonstrate

partial mastery. The unit answer keys, comprehension assessment answer keys, and performance assessment answer keys provide correct or partially correct answers. The performance assessment includes a table with guidance on which activities to reteach. However, there is a lack of additional teacher resources or direction to respond to individual student needs based on measures of student progress. The materials lack novel resources for the teacher to use for reteaching or responding to student needs based on performance.

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

- Assessment tools contain relevant information for teachers to use when planning instruction, intervention, and extension. For example, after Activity 6, the answer key gives three different teacher responses based on student mastery of success criteria. If students show less than 50% mastery, the teacher should respond with 1-1 interventions; if students show less than 80% mastery, utilize small groups, and if they show over 80% mastery, the teacher should provide additional extension activities from current or past units. The Unit Assessment Answer Key in the Assessment Map lists the activities from the unit lesson plan that support the remediation or review of specific skills. For example, in the Unit 10 unit assessment, question 2 addresses SEP 1G, TEKS 5.8B, and RTC 5D at a depth of knowledge of 2. If students do not master this question, the materials suggest that the teacher reviews activities 2-8 in the Unit Lesson Plan for support with tools for remediation or review.
- The materials consistently provide reteaching suggestions within the unit/weekly teacher guidance documents. For example, in Unit 13, *Wonders of Weather,* the materials provide support for the teacher with suggestions for scaffolding student feedback in various formative assessments, such as giving time for paired feedback. The materials suggest the teacher analyze student responses using the rubric for the proficiency of the success criteria and provide guidance such as, "If students struggled to complete the formative assessment at proficiency level, ask them to problem-solve with a peer who showed mastery and compare their responses. Encourage students to assess the value of the feedback and whether or not they will incorporate it."
- Activities within the Unit Lesson Guides, in the Teacher Edition, include a Formative Assessment chart providing the teacher with the evidence to look for when evaluating student understanding and mastery of the success criteria. For example, in grade 5, Unit 12, Activity 2, teachers use the Chalk Shadows Exit Ticket to check for proficiency in the success criteria. Teachers use the evidence to plan for instruction, interventions, or extensions. The Unit 21, Lesson Guide, the “Differentiation” section provides teachers with solutions for students who are developing their reading skills, such as, "Students can read the lower Lexile measure version of the article 'Orca: The Killer Dolphin' the There's a Trait for That!: Lower Lexile Measure Articles printable."

Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.

- The materials provide limited resources for teachers planning for responding to student data and lack teacher resources that explain how to leverage various tools aligned to student performance on assessments or at various knowledge levels. For example, in Unit 4, Activity 3, the support for differentiation describes two different activities for the teacher to use with developing or advanced students. The developing students work with a partner to come up with

phenomenon questions while the advanced students take turns reading the comic aloud to the class, focusing on prosody and rate. These differentiation suggestions lack clarity on which data the teacher should analyze to determine which students may benefit from these tasks.

- Materials provide additional student support materials along with some teacher guidance on how to use them. For example, in Unit 3, word wall cards with blank boxes are provided for the unit vocabulary words such as *proposal.* Teacher guidance includes having the class create a drawing for the vocabulary word, post the drawing on the classroom word wall, and refer to the card throughout the unit. However, the materials do not provide a list of suggested activities to assign students or a set of lessons to teach when students score below expectations.
- The materials provide teachers with reports of students' weekly progress, weekly assessments, and the status of student's completed work; however, the materials' data systems do not group students for reteaching or have alternate lessons and activities related to the assessment data.
- Materials provide a variety of resources and teacher guidance on how to leverage different activities to scaffold student learning but lack guidance on how to respond to student data to help plan for small-group instruction to address gaps in learning.

Studies Weekly Texas Science Grade 5

Indicator 6.3

Assessments are clear and easy to understand.

1	Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.	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 to learning goals.	M

Meets | Score 2/2

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

Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. 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 to learning goals.

Evidence includes but is not limited to:

Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.

- Assessments include scientifically accurate terminology, are free from bias, and are error-free. Summative assessments use terms students can understand. For example, in the Unit 13 unit assessment, Question 7 asks students, "Which statement best describes an interaction occurring in the image?" Instead of asking what is happening or how the water cycle occurs, the term 'interaction' refers students to the science and engineering practice (SEP) of observing and recurring themes and concepts (RTC) of noticing patterns.
- Student assessment items utilize scientifically accurate vocabulary and set expectations for students to use accurate vocabulary in their written responses. For example, in Unit 11 Unit Assessment, students choose statements to demonstrate their vocabulary and content knowledge, such as: "Which observations from Tia's science notebook are evidence of light refraction? Choose all that apply. A. The light bends. B. The light is taken in. C. The light bounces back. D. The light does not shine through. E. The light is separated into colors."
- Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. For example, in Unit 20, Unit Assessment, Question 9 provides a picture of a polar bear in its natural habitat that students analyze when asked to choose the best answer about which structure provides the most protection from freezing temperature. The visual support allows the assessment to be free from bias since many students have never experienced life outside of Texas. Unit 20, the Exit Ticket, provides students with a scenario about a rabbit panting through its mouth and spreading its ears in the Chihuahuan Desert. Students can choose the most likely temperature in the Chihuahuan Desert that day. The assessment includes a picture of the desert

for students to analyze, providing support for the students who may have never been to or seen a desert.

- Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. Unit 13, "Prior Knowledge" gives the students a common understanding of the water cycle, stating, "The water cycle is the process of water moving throughout Earth. It occurs on land and in the air. It's continuous, which means it never stops. There's no beginning or end to the water cycle." This article is free of errors and scientifically accurate.

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

- Assessments use developmentally appropriate graphics focused on the question asked. For example, in Unit 11, Unit Assessment, students match photos to the terms *reflection, absorption,* and *refraction.* The graphics used focus on one image and don't include any images containing many possible answers that could be confusing for fifth-grade students, such as a photo of a wide area where reflection, refraction, and absorption could be seen.
- Assessment tools use clear pictures and graphics that are developmentally appropriate. For example, Unit 13 Unit Assessment Question 1 includes a simple water cycle graphic; this is appropriate for the students to use to answer the question. The Unit 4 assessment includes a multiple-choice question that asks the student to look at an image and decide what will happen to the paper clips when the magnet is removed. The image chosen for this question depicts a boy of the same age holding a horseshoe-type magnet with paper clips hanging from it.
- Unit assessments include clear pictures and graphics that are developmentally appropriate. For example, in Unit 3, the performance assessment includes a photo of a toy boat, which students study to identify physical properties that would have been considered when designing it. The images and photos are clear, easy to view, bright colors, and non-pixelated.

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

- The materials provide guidance for consistent and accurate administration of assessments. For example, the "Introduction to Texas Science 2nd-5th Grades PDF" states that "Every unit includes a variety of assessments," and describes the various types of assessments, where to find them, and how teachers may use this evidence to inform instruction. Materials also include a "Tips for Administering Assessments" document, which includes step-by-step directions for assessment administration. The steps provide teacher guidance for different phases of assessment including "Preparation," which guides the teacher to prepare the written and technological tools and test the technology prior to testing to avoid potential interruptions, and "Accommodations," which reminds the teacher to provide accommodations to eligible students according to their Individualized Education Program (IEP). Additional guidance is provided in the "Privacy," "Distractions," "Monitoring," and "Stress Management" sections of the document.
- The materials contain an overview document, "How To Use Studies Weekly," outlining the available assessments and the consistency of assessments from unit to unit. In the "Tips for Administering Assessments, Accommodations," the directions state that the teacher must not prompt or hint during the duration of the assessment nor assist students in constructing or rephrasing their responses. The " Monitoring " section guides the teacher to ensure that there is no talking during the test, and to allow students to take breaks as needed. If students request help related to the assessment's content, the document guides the teacher to respond naturally with, "I can't answer that for you; just do your best."

- The materials provide teacher resources to understand assessment procedures for the variety of provided assessment types. For example, the training video “Assessments” provides teachers with information about how to navigate the assessments, access a student view, grade, view classroom test statistics, and edit or print the test. The “Tips for Administering Assessments” document provides a script to ensure consistency of the administration, guides the teacher to space student desks apart or use privacy folders to ensure accurate assessment results, and provides student activities to help manage testing anxiety.

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

- The materials allow teachers to assess students using a printable copy of assessments or an online format. The online format of assessments includes an audible reading of the assessment materials and additional graphics which support the students with the directions of the task. The training materials include a video that explains assessments and their capabilities. The video explains how the unit assessment allows the teacher to edit, delete, and add to the questions that are included in the unit assessment. The questions are defaulted to allow for audible reading of questions and answers. The teacher may customize assessments such as adding or deleting answer choices to questions. Assessments include 11 different question types, which the teacher can use as they add questions. The questions give the options for teachers to include other materials such as images, articles, crosswords, and misspelled words for students to unscramble. The teacher can add additional instructions for students to access prior to beginning the assessment.
- Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals. For example, the teacher answer keys for each unit assessment indicate depth of knowledge rankings for each question, to support remediation or review. These tools facilitate teacher understanding of the level of mastery students are demonstrating and how to address it if gaps exist. Unit 9 Lesson Plan, Activity 3 includes differentiation suggestions for teachers if students are in need of additional support after the *Reflection & Connection* task. The guidance includes suggestions such as working with students in small groups and listening to a podcast in smaller clips, periodically stopping to clarify words, and checking for comprehension.
- Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals. For example, students who are developing their reading fluency can read the lower Lexile measure version of the articles included in the unit printables. Digital materials offer a text-to-speech software feature that students can use to listen to questions in the assessments. In addition, the digital Student Edition’s Unit Assessments labeling and grouping questions allow students to drag and drop answers instead of writing them manually.

Studies Weekly Texas Science Grade 5

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 embed recommended targeted instruction and activities for students who have not yet achieved mastery of the unit lesson plans. These materials include suggestions for optional differentiations at the end of the activity lesson plan. For example, in Unit 10, Activity 9, the teacher differentiation directs the teacher to place students needing scaffolds into a small group to complete the circuit models with peer support rather than independently. In Unit 2, Activity 2, the optional differentiation suggests that if a student doesn't show understanding of volume, teachers may consider using a different learning strategy, such as a metaphor, and utilize additional visuals and models to explain the concept differently.
- Teacher lesson guides provide guidance to support students who may need assistance as they complete lesson activities. In Unit 15, Activity 1 includes teacher guidance suggesting the use of sentence stems such as, “I think (part of the question) because (reason). I think this because (observation/prior knowledge)." Materials provide a specific example in case teachers need to model, such as "*I think* the flower wilts *because* it didn't get enough water. *I think this because* when we went on vacation, we didn't water our plants, and the plants were all wilted when we got back."
- Materials include Unit Lesson Guides containing detailed steps for each activity in the unit. Each unit provides an optional opportunity for differentiation. For example, in Unit 4, Activity 1, “Phenomenon Introduction,” developing students work with a partner to come up with their phenomenon questions. In addition, the materials consistently provide a lower Lexile version of student articles included in the weekly materials. For example, in Unit 15, a 690 Lexile (grade 4 level) of the article “Shifting Sands” is included for students who need it.

- The material provides recommended targeted instruction and activities to scaffold learning for students. Unit 13, Activity 2, provides a student word bank. Unit 13, Activity 3, “Optional Differentiation,” provides guidance such as, "Allow struggling students to formulate their predictions or claims as a model and share their reasoning verbally."

Materials provide enrichment activities for all levels of learners.

- Teacher guidance materials include optional activities for unit elaboration or additional learning. For example, in Unit 10, three optional extension activities provide opportunities to engage in the Elaborate step of the 5E model for science, including reading an article about magnetism and electricity, creating a wire dancer to model change, motion, and energy transfer, or building a scribble bot to show the transformation of electrical energy into motion.
- The materials provide several Project Time videos outlining extracurricular projects that students could complete as enrichment activities. Materials provide a single collection of 24 videos for grades 3-5. Video topics are related to units of study within the materials, such as the video “Invisible Ink” and Unit 6, “Invisible Matter.”
- Grade 5 Unit Lesson Guides provide extension activities as enrichment opportunities for all learners. For example, in Unit 16, students create presentations regarding the unit’s engineering design problem and solution. Other activities include using recycled waste to create works of art, related articles with questions, and maps of nearby water sources.
- Materials provide enrichment activities for all levels of learners. Unit 13, Optional Differentiation, provides two levels of support for students. For example, "challenge(s) higher-performing students to make the connection to unseen particles in the air."

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

- The materials embed recommended targeted instruction and activities for students performing at an advanced level into the unit lesson plans. For example, in Unit 14, Activity 2 includes an opportunity for students to research additional types of sedimentary rocks and draw a model of one they find most interesting.
- Materials provide extension activities for students who are ready to accelerate their learning on unit topics. For example, in Unit 7, the activity *Basketball and Tennis Ball*, students draw on knowledge from the unit to ask further questions and make predictions about the effects of a collision between a basketball and a tennis ball during a demonstration activity. Students work collaboratively to relate their questions and explanations to other concepts previously learned.
- In Unit 16, the Lesson Guide states: “If students fail to identify any items that would not be easily recognized as made of or including plastic, point those out to students.” In Unit 16, Activity 2, students read an article about plastic waste. Students use the scaffolded “Plastic Waste Jigsaw Treemap” printable to organize their ideas.
- Materials provide scaffolds and guidance for just-in-time learning acceleration for all students. Unit 17, Teacher Edition, “Common Misconceptions” includes the misconception that "Predators are bad for ecosystems." The material includes a text, “Predator Poems,” stating, "In a healthy prairie ecosystem, Look closely and you may find, Quiet fox hiding in the grass, Out of sight and out of mind."

Studies Weekly Texas Science Grade 5

Indicator 7.2

Materials include a variety of research-based instructional methods that appeal to a variety of 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 types of 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

Meets | 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 types of 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 the mastery of the content through a variety of developmentally appropriate instructional approaches. For example, in Unit 14, Activity 3, students investigate rock models and make observations about the rock model they designed on the previous day. Students make connections from this model to coal formations using a visual aid and graphic organizer. Later in the week, students write their own explanations about coal formation and give one another feedback to revise their writing pieces.
- Materials use a variety of developmentally appropriate instructional approaches, including but not limited to hands-on activities and collaborative learning. In Unit 7, Activity 2, students work in groups to plan, design, test, and improve a solution to the problem of a cup of hot liquid needing to be insulated to keep hands safe and stay warm. Students work in pairs to push their hands against one another with equal forces to develop their understanding of how equal and unequal forces cause the transfer of energy. Students record their findings and conclusions in writing on a provided graphic organizer and temperature graph. Teachers monitor for gaps in understanding and misconceptions as students work.

- Unit materials introduce the phenomena using a cartoon comic format engaging students' attention to the content from the very beginning. Unit Lesson Guides provide optional differentiated activities for developing learners in which students choose to complete the task independently or with a partner. For example, in Unit 8, students work independently or in pairs to complete the final activity.
- Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. For example, in Unit 5 Unit, the STEM Career Spotlight: Ice Cream Chemist directs students to "Read the article with your group and follow the listed reading strategies. Complete the 'Demonstrate' section in the student edition on your own." This article connects a real-world career, "ice-cream scientist," to the topic.

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 Unit 2, Activity 2 directs the teacher to group students in the teacher note, "You may assign each group to one investigation, then come together collaboratively or as a whole group to discuss the results." In Unit 4, students work with a partner to create and answer questions during a student-driven inquiry, complete an investigation in small groups within a whole group activity, read the article "Doctors in Texas Uses Magnets in Surgeries," and answer questions independently or in pairs.
- Materials incorporate flexible grouping consistently throughout the curriculum. In Unit 3, Activity 1, students read an article, "Bored Dogs and Destructive Behaviors," to prepare for their engineering design project. Teachers decide whether to have students read as a class, collaboratively, or independently. In Activity 2, students read four dog profiles in pairs to anticipate the needs of different dogs. During Activity 3, students work in collaborative groups to research information on various materials they will use to create a dog toy. In Unit 19, Activity 2, students work in collaborative groups to complete the A Healthy Ocean investigation as teachers monitor for understanding. After completing the investigation, students respond independently to the "Reflect and Connect" question in their science notebooks. In Activity 5, students review a video from the beginning of the unit as a whole group and share any new understandings they have about ecosystems or the dead zone.
- Materials consistently support flexible grouping. For example, Unit 9 Activity 2 organizes the lesson to change instruction from the whole group to reflecting in their science notebooks individually to understand the task. Unit 13 starts the investigation of the Phenomenon discussion in partners or small groups. In Activity 2, Water Cycle Model, students label the diagram during a class discussion, and in Activity 4, The Sun and Ocean: A Closer Look directs students to read the article and answer questions independently.

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

- The materials include a wide range of types of practices, including collaborative, student-driven discussions, teacher-guided or modeled activities, and independent practice. For example, Unit 18, Activity 3 includes a variety of practices including student-driven inquiry, whole group discussion, collaborative learning in pairs as students research, and independent work. An additional example in Unit 6, Activity 5 outlines the portions of the lesson as student-driven inquiry, and collaborative learning with a small group, and provides guiding prompts for the teacher to ask groups as she circulates. The Lesson guide includes expected student responses

to the prompts, such as, "If you kept cutting the cracker, what would eventually happen? (There would be a piece small enough that it couldn't be cut anymore.)"

- Materials incorporate flexible grouping consistently throughout the curriculum and guide teachers to facilitate success in different types of learning settings. In Unit 3, Activity 1, students read an article, “Bored Dogs and Destructive Behaviors,” to prepare for their engineering design project. Teachers decide whether to have students read as a class, collaboratively, or independently. In Activity 2, students read four dog profiles. A Teacher Note provides further guidance: "Assign engineering teams or have students separate themselves into groups of four. You may encourage them to come up with team names. For differentiation, you may also give students the option to work alone."
- Unit materials include a variety of assessments of learning opportunities to ensure that multiple types of practices lead to student mastery. Unit 4, students work with a partner to create and answer questions during a student-driven inquiry, complete an investigation in small groups within a whole group activity, read the article *Doctors in Texas Uses Magnets in Surgeries*, and answer questions independently or in pairs.
- Materials consistently support multiple types of practices and provide guidance and structures to achieve effective implementation. For example, Unit 5, Phenomenon Introduction, instructs teachers to model thinking for students by asking them to pay attention to their thoughts and questions, as well as what they already know about salt, ocean water, and the conservation of matter, as they observe the phenomenon.

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

- Real-world examples and connections throughout the materials represent a diversity of communities and places, including rural, urban, and suburban communities, cities, and states across the U.S. and countries around the world. Depictions of places are respectful and inclusive, with an emphasis on community strengths, resources, and unique characteristics. The “Introduction to the Texas Science Weekly 2nd-5th Grade” PDF explains the goal of culturally responsive teaching within the lessons. "We strive to include abundant representations of children from diverse backgrounds. We also strive to point out children's and adults’ contributions to their communities and to scientific discoveries."
- Resources depict real working scientists of various ethnic backgrounds. Throughout the materials, students are represented in phenomenon comics that appear to represent a wide range of genders, races, ethnicities, abilities, and national origins. For example, the “Student Support” video from Unit 3 depicts Carlos Barrios, a materials engineer from 3M who works on Command adhesive products, as he explains his role in science.
- Grade 5 materials represent a diversity of communities in the images and information about people and places. For example, in Unit 20, Activity 1, students analyze an image and watch the phenomenon video Built for Desert Life showcasing the organisms living in the Chihuahuan Desert in Texas as well as in parts of Mexico. Students learn about the functions and structures of animals living in the desert by reading an article written by a student at the University of Texas at El Paso narrating his encounters with such animals. Other examples include Unit 19, in which students explore the phenomenon of the Dead Zone along the Texas Gulf Coast, and Unit 15, in which students explore and investigate the phenomenon that Texas has no U-shaped valleys.

Studies Weekly Texas Science Grade 5

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 materials meet the criteria for this indicator. Materials include 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 guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. The "Introduction to Texas Science Weekly K-5" document includes the various English Language Proficiency Standards (ELPS) supported in the materials, "Not only are ELPS integrated throughout every unit as shown by the Standards Coverage chart and point of use references, but there are several additional resources to support students and teachers. The Texas English Language Development or ELD slides, customized for each unit, provide additional linguistic support for the whole class or small groups." The resource includes additional tools such as the "Strategies and Leveling for ELPS," a teacher tool aligned with each proficiency level, and the "ELPS Strategies and Leveling" document, which encourages the strategic use of students' first language to support learning. For example, the "Listening" section includes strategies such as "Provide small-group instruction for diverse learners of the 'Picture Walk' allowing students to elaborate on what they see in their first language."
- Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. The materials include the "Studies Weekly Strategies and Leveling for the ELPS" document, which provides support to scaffold content for students of various English proficiency levels. The document includes the ELPS foundational skills of Listening, Metacognitive Thinking, Speaking and Problem Solving, Speaking, and Writing, as well as broader categories of Listening, Speaking, Reading, and Writing. As an example, ELPS 1Ai uses prior knowledge to understand meanings in

English. Materials suggest that teachers may pre-teach vocabulary with visuals and translations to students' first language. The materials suggest that teachers may show visuals of examples and non-examples with some words in the student's first language to support ELPS 1Eiv, internalizing using academic language.

- Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. For example, in grade 5, Unit 12, Activity 4, the lesson guide suggests students use their first language to describe their observations during the collaborative learning time, and they explore the movement of light they see while using an inflatable globe and a flashlight. Additionally, the Intermediate Grade-Leveling Strategy suggests that teachers strategically pair students with proficient peers to create a version of the anchor chart to keep at their desks that contains their first language and English and limit text to single words and short simple phrases.

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

- Materials provide a means to linguistic, affective, cognitive, and academic development in English. For example, in "*The Introduction to Texas Science Weekly K-5"* document, the various English Language Proficiency Standards (ELPS) support provides context such as, "Not only are ELPS integrated throughout every unit as shown by the Standards Coverage chart and point of use references, but there are several additional resources to support students and teachers. The Texas English Language Development (ELD) slides, customized for each unit, provide additional linguistic support for the whole class or small groups." The resource describes additional teacher tools such as the "Strategies and Leveling for ELPS" with strategies for each proficiency level throughout the curriculum.
- Materials encourage strategic use of students' first language. For example, the materials include a generalized guidance document, "Studies Weekly Strategies and Leveling for the ELPS," which provides a chart on how teachers can scaffold content for students of various English proficiency levels, including suggestions on when first language use is appropriate. For example, to support speaking and writing ELPS 1Eiv, internalizing using academic language, the materials suggest that teachers may show visuals of examples and non-examples with some words in the student's first language. An additional example is evidence in the "Listening" section, which includes grade leveling strategies such as, "Provide small-group instruction for diverse learners of the 'Picture Walk' allowing students to elaborate on what they see in their first language," and "Have students describe in their first language and attempt to describe in English."
- Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. For example, to support ELPS 1Ai, and use prior knowledge to understand meanings in English, materials suggest that teachers may pre-teach vocabulary with visuals and translations to students' first language. Additionally, to support ELPS 3Gi and 3Gii, express opinions and ideas ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics, the "Intermediate Grade-Leveling Strategy" suggests that teachers strategically pair students with proficient peers to create a version of the anchor chart to keep at their desks that contains their first language and English as well as limit text to single words, and short simple phrases.

Studies Weekly Texas Science Grade 5

Indicator 7.4

Materials provide guidance on fostering connections between home and school.

1	Materials provide information to be shared with students and caregivers about the design of the program.	M
2	Materials provide information to be shared with caregivers for how they can 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 provide guidance on fostering connections between home and school.

Materials provide information to be shared with students and caregivers about the design of the program. Materials provide information to be shared with caregivers for how they can 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 design of the program.

- The materials provide the teacher with resources to inform caregivers about the curriculum students will experience throughout the year. For example, the one-page document “How to Use Studies Weekly” describes the overall instructional design and how the materials are organized, the emphasis on hypotheses, phenomena, science and engineering processes, and student-driven inquiry. The document provides context for the teacher regarding usage with statements such as, "As you know, it's important to keep caregivers informed and supported through the school year so that they can continue the learning process at home."
- The materials provide resources for parents and caregivers. For example, while not specifically geared for families, the teacher edition document “How to Use Studies Weekly” provides details about various components of the program that may be of interest to parents, such as instructional time and aligned Texas Essential Knowledge and Skills (TEKS). The document includes information such as how each grade is organized by units that consist of one or two weeks of instruction that align to a single standard. The materials also outline how the 3-dimensional instructional design aligns with the Scientific and Engineering Practices (SEP) and Recurring Themes and Concepts (RTC) and is integrated into the science lesson plans.
- Materials provide information to be shared with students and caregivers about the design of the program. For example, Unit 13, the “Student Support Resources Home Learning Letter,” informs families that "during science instruction at school, your child will explain how the sun and the ocean interact in the water cycle and affect the weather." The document also provides information regarding skills students should be able to understand by the end of the unit, such as"I can ask questions and hypothesize about how rainwater can come from the ocean,” “I can describe the water cycle and make predictions about how the sun and ocean affect the

weather," and "I can conduct investigations to collect data and make predictions about the sun's interaction with the ocean interact in the water cycle."

Materials provide information to be shared with caregivers for how they can help reinforce student learning and development.

- Materials include a "Home Learning Letter" for each unit of instruction to share with caregivers. The letter shares information regarding the unit objectives, home activities to continue learning, unit vocabulary, possible student misconceptions, and suggested questions to help caregivers continue the classroom conversation. The end of the "Home Learning Letter" suggests the caregiver check the student's edition of Studies Weekly, then go online for more content information.
- The materials include a "Tools to Help You Communicate with Parents" document, which explains that each unit includes a "Home Letter," which is the primary means of communication for parents specific to the content of each week. The resource provides parents with "unit objectives, home activities to continue learning, unit vocabulary, possible student misconceptions, and suggested questions to help caregivers continue the classroom conversation." The resource explains that the goal of these tools is to help teachers build stronger relationships with parents and caregivers.
- The materials include a "Student Support Resources Home Learning Letter" for each unit that describes what students are learning at school and ways to assist this learning at home. The letter explains unit vocabulary and possible misconceptions and provides suggested questions. For example, in Unit 3, the letter outlines that students are designing a solution to an engineering problem by comparing materials with different properties and provides a home activity in which children use different materials to slow down how quickly an ice cube melts and measure their results. Materials emphasize that parents should use words such as *conductivity*, which supports students' understanding that all metals are not magnetic. Additional examples include the Unit 21 "Student Support Resources Home Learning Letter," which shares,

  > To help support your child in understanding this concept, we suggest the following: Discuss with your child instinctive vs. learned behavior. For example, eating or swallowing food, crying as an infant, or blinking our eyes when someone blows into them are all instinctive behaviors. They do not have to be taught. Examples of learned behavior include walking, riding a bike, brushing your teeth, getting dressed, or other skills. Have a debate: Would an orca or a shark be more successful at capturing fish or seals for prey? Research orca whales and great white sharks. What do they hunt? What is instinctive behavior or orcas? Sharks? What is the learned behavior of orcas? Sharks?

Materials include information to guide teacher communications with caregivers.

- The materials provide information to guide teacher communication with caregivers. For example, in the video titled *Reports*, teachers can access *Weekly Assessment Reports and Progress Reports* that show student achievement and progress. Teachers can also view a line graph of progress to view student performance on reading comprehension questions from science articles. These reports guide teachers in how and what to include in parent and caregiver communication.
- The materials include reminders for teachers to utilize the unit "Home Learning Letter" for ongoing parent and caregiver communication as a tool for the home-school connection. For

example, the “Parent-Communication Tools” document explains the resources are provided to help with parent or caregiver communication. The letter informs the teacher of the one-page information flier students can take home and about the “Home Letter” available to support communication throughout the school year. In grade 5, Unit 9, the lesson plan includes the “Shining a Light On Energy Changes: Home Letter” as a reminder for teachers to print and share this resource with caregivers. The Student Support Resources explains that the document "provides information about the design of the program and how caregivers can reinforce student learning and development."

- Within the online training section of the materials, videos provide guidance on aspects of the program of interest to parents and help teachers navigate these features. In the video titled “What's New Webinar: Introducing the New Explore Science 3-5 Curriculum,” teachers access further detail about how science learning has changed and information about the Science and Engineering Practices (SEP) and Recurring Themes and Concepts (RTC) that can provide more details to help families understand what their students are learning.

Studies Weekly Texas Science Grade 5

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 into 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.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include year-long plans with 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 into 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 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 into the course materials.

- Materials include a cohesive scope and sequence that outlines how science knowledge and skills are taught and built into the materials over the course. For example, materials found in the Teacher's Editions, within the "Publication Resources", include a scope and sequence outlining the order in which knowledge and skills are taught and the location within the course materials. For example, Unit 12, "Patterns in the Sky" aligns with TEKS 5.9.
- Materials included in the Teacher's Edition tab include a document correlating the TEKS and English Language Proficiency Standards (ELPS) showing how concepts are taught and built over the units of instruction. This document details topics being spiraled throughout the year. Details include the specific pages, location description, and citation links for teacher access. For example, TEKS 5.1.A.i is introduced in Unit 1, as a student-driven inquiry activity, and in Unit 2 as they are introduced to an additional phenomenon. The phenomena concept is continued in Units 3, 10, and 12.
- In the Teacher Editions, a grade 5 scope and sequence outlines the core ideas for each unit. Unit 1 includes scientific investigation and engineering design, Units 2-6 include Matter and Energy, Force, and Units 7-11 include Motion and Energy. Units 12-16 include Earth and Space, and Units 17-21 focus on Organisms and Environments. Third and fourth grades include year-long concept reviews however, no review weeks are present at the end of the year for fifth grade.

Studies Weekly Texas Science Grade 5

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, science and engineering practices (SEP), and recurring themes and concepts (RTC).
- Materials include a "Teacher Resources" section and a podcast to support teacher topic background, answer keys, and lab guides. The lab guides include materials lists, investigation set-up information, suggestions for the teacher to test out the lab materials before students, troubleshooting suggestions, and clean-up directions. For example, in Unit 15 "There is No U in Texas", the teacher's instructions in the Activity 3 document provide a list of materials to gather, set up, and test out the delta formation model. The instructions include troubleshooting steps the teacher may take if the model is not performing as expected, such as adjusting the angle of incline for the sand. The document then provides directions for clean up including a reminder to avoid pouring sand in the sink. Most lessons include opportunities for students to make connections across core concepts, SEP, and RTC. For example, in Unit 12, "Patterns in the Sky", the Phenomenon Introduction includes a label guiding students to write their own investigative questions and hypothesis from the reading about shadows.
- Each unit includes introductory materials for teachers about the unit objectives. Alongside the objective information, bulleted information is listed regarding SEP and RTCs with clarifying student expectations within the unit. For example, in Unit 7, "Force of the Athlete", aligned SEPs include developing and using models and RTCs such as cause-and-effect relationships.
- The Training and Resources section includes videos, audio, and pdf documents to support teacher navigation through the product. The Teacher Edition includes printables of all resources needed for each section/activity within the Unit, including related media videos. For example, in Unit 6, "Invisible Matter: Part A", printables include investigation procedures, a discussion guide, differentiated student tasks, and an exit ticket. Teacher support resources include topic background information, answer keys, reading comprehension questions, unit assessments, and performance tasks.

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

- The materials include intentional practice and spiraling of previously taught knowledge and skills from earlier lessons/grade levels and the current lesson's science knowledge and skills. Within the assessment materials evidence supports spiral review and students engage in multiple opportunities to demonstrate mastery of content. For example, in the Unit 15 performance task, students have options to select from various performance tasks. All the task options give an opportunity for students to demonstrate the Recurring Theme and Concept of Cause and Effect, which they also practiced throughout the unit within the student response questions in the student booklet.
- The *Citations to the TEKS and ELPS* teacher resource details how standards are spiraled throughout the year and across Units. Various teacher links provide multiple resources for students to practice skills or for the teacher to reteach a prior skill. For example, in Unit 3, Activity 10, students first demonstrate an understanding of TEKS 5.3.Bvi. In Unit 8, Activity 10, the "Collaborative Learning" and the "Communicate" sections students practice this skill again. Finally, in Unit 16, Activity 10, "Texas Rain Catcher Award" teams work together to demonstrate their mastery of the skill.

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- Materials provide opportunities for review and practice through the reading of articles, conducting labs, and creating/answering questions. Materials contain a recurring *Explained* article after the last activity for each unit for spiral review. For example, after Unit 5, “Magical Mixing Matter”, students read or listen to an article to review and define matter in solution.

Studies Weekly Texas Science Grade 5

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

1	Materials provide teacher guidance and recommendations for the 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 the 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 the 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 are organized in a way that facilitates ease of implementation and use, including the assessing and storing of materials.
- The online materials include additional tools for increased support for specific strategies such as the 5E model and Think, Pair, Share. Teachers reach these guides by using the Training and Resources button on the universal access sidebar.
- Materials include a Unit Guide in the online teacher materials Table of Contents. The Unit Guide is organized by week, covering the objectives, including text, technology, enrichment, instructional strategies, and scaffolds. For example, in Unit 1, teachers access a summary of activities to guide implementation. Teachers access a list of materials for the unit and three content videos. Guidance materials suggest several supports for extensions. The materials include leveled Lexile addressing differentiation for students reading below grade level.

Studies Weekly Texas Science Grade 5

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 documents and online resources. The materials include cross-content standards for ELA, math, and social studies within the Teacher's Guide to lessons.
- The *Teacher Edition* includes a weekly "Standards Coverage" chart. This chart includes cross-content standards addressed within the weekly lessons. For example, in Unit 17, lessons encompass ELAR TEKS 5.9. Activity 4 includes ELAR TEKS 5.9C focusing on drama skills, and Activity 6 incorporates ELAR TEKS 5.9Dii focusing on informational text features like insets, timelines, and sidebars to support understanding.
- The materials include a correlation chart outlining the TEKS or ELPS and the component title, type, and audience for each item representing the standard. This chart also details the specific pages, location description, and a citation link to materials so the teacher can quickly access the materials. The chart details topics being spiraled throughout the year. For example, ELPS 1.A.i appears in Unit 1, as a student-driven inquiry activity. Later the students experience the concept in Unit 2 as they are introduced to another phenomenon. This standard is taught again in Units 3, 10, and 12.
- In the "Unit/Weekly Guidance" documents, teachers access sidebar information about connections with other subject areas. In Unit 6, "Invisible Matter," the materials connect the science content objectives with math TEKS such as 5.1D "communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate."
- The *Teacher Edition* includes a *Correlation to the TEKS and ELPS* document that references how concepts are taught and built over the units of instruction. For example, TEKS 5.4.F.i appears within Unit 6, "Picture Walk," and Unit 10, "Unpacking Text."
- Within the *Teacher Edition*, each unit includes a "Standards Coverage" chart with cross-content standards correlations. For example, in Unit 1, "You Can Be a Scientist! You Can be an Engineer!" ELAR TEKS 5.7A asks students to "describe personal connections to various sources, including self-selected texts" and ELPS 1.A "asks students to use prior knowledge and experiences to understand meanings in English."
- Materials for grade 5 include a Correlation to the TEKS and ELPS chart in the *Teacher Edition* listing the spiraled opportunities for each TEKS Standard. For example, ELPS 1.A.ii appears in Unit 7, Activity 3, "Vocabulary," and in Unit 5, Activity 6, "Independent Work."

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

- The materials include an appendix with a comprehensive list of all equipment and supplies needed to support students, teachers, and administrators during instructional activities.
- The *Teacher Edition* of the online materials in each unit contains downloadable files needed for all tasks or activities within the unit. For example, the teacher edition contains videos or audio recordings, activity guides for labs or demonstrations, and a list of materials that will be used in student activities. These guides also include a list of materials that will be used in the activity. For example, in Unit 11, "Light Interactions," the teacher uses the Light Travels Demonstration Instructions to gather the materials for this experience.

- Weekly lesson plans contain a sidebar for each activity listing materials needed for that lesson. For example, teachers easily scan down the left side of the lesson pages to ready all materials for the week. During Activity 1, teachers use anchor chart paper. For Activity 3, teachers show the *Survival on the Texas Prairie Phenomenon* video, and students use *Abiotic or Biotic Plant Interactions Card Game Pieces*.
- Within the *Teacher Edition*, each unit contains a detailed lesson plan with the needed materials listed at the top of each new activity lesson plan. For example, Unit 4, Activity 2, "Property Identification," lists digital scale, iron fillings, magnets, and paper plates as the materials needed.

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

- The materials provide teacher and student guidance for safety practices and grade-appropriate use of safety equipment during investigations under *Texas Education Agency Science Safety Standards*.
- The unit materials include numerous opportunities for students to learn about safety practices. In Unit 1 in the Student Support Resources, students have an opportunity to view a video about staying safe while doing science. Students then reflect on what they heard in the video and connect it to their future explorations in Activity 2.
- The unit materials include numerous opportunities for students to learn about safety practices. As students engage in Unit 1, "Science and Engineering," the teacher references the "Lab Safety Poster" and lab rules, which were co-constructed in Unit 1.
- In all grade levels, Unit 1 contains a lesson on "Tools and Safety" as well as a "Lab Safety Poster" that teachers display. Teachers show two videos, *Let's Investigate: Safety First* and *Science Safety,* and read an article, "Tools and Safety," with students.
- Lessons contain specific safety information relating to the activities students complete. In Unit 16, Activity 9, students create prototypes with plastic waste, glue guns, and scissors. Teachers review the classroom safety rules and those within the *Texas Science Safety Standards* as directed by the lesson.
- Lesson plans including hands-on activities include a *Teacher Note* section at the beginning of the lesson plan that guides safety practices during the investigations. For example, Unit 4, Activity 3, "*Magnetic Powers,"* reminds teachers to require students to wear safety goggles and gloves when executing the investigation.

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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.
- The materials include a training and resources section and a webinar that overviews the new science curriculum for grades 2-5. In this webinar, the presenter explains an overview of the structure of the curriculum and clarifies that each unit represents 1-2 weeks of instruction and about 3.75 hours of content per week about 45 minutes of instruction per day. Each unit focuses on 1-2 TEKS per week using the weekly student publication in a newspaper format.
- Each unit contains a “Unit/Weekly Guidance” document, in which teachers access weekly and daily lessons. Each weekly plan contains a table listing each daily lesson and the estimated time for completion. In addition, teachers access a list of optional activities which also provides times. For example, in Unit 8, “Engineering Design: Runaway Trucks,” and “Refine Your Prototype,” is scheduled for 45 minutes, and optional activities such as “The Driving Force of Motion” is listed for 25 minutes.
- Teacher guidance materials in the units under the *Teacher Edition* include an “Activity Summary Chart” which indicates the recommended time allotted for each day's activity. Information presented on this chart lists the day for the activities, the lesson time allotted, the 5E stage, and the page number. For example, in Unit 1, Week 1, Day 2, the activity “Tools and Safety” is in the Explore section and scheduled for 45 minutes. Under Table of Contents, each Unit includes a lesson plan providing the recommended time for each activity. For example, Unit 7, Week 13 Lesson Plans suggest 45 minutes for Activity 1 *Phenomenon Introduction.*

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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.
- Materials found in the Teacher's Edition section, within the "Publication Resources," include a scope and sequence outlining the order in which TEKS are taught and built into the course materials. In fifth grade, students learn about foundational ideas in Unit 1, "Introduction to Science and Engineering." In Unit 2 and subsequent units, standards progress from simpler skills, such as students comparing and contrasting physical properties of matter, to comparing properties of substances before being added to a solution, to demonstrating that matter is conserved in solutions.
- Lessons follow a consistent implementation flow throughout the program that supports student learning from more basic understandings to more complex ideas. In Unit 9, students read a phenomenon comic strip about how electricity flows. Following this, students explore with flashlights and generate questions about how batteries power flashlights. Students then form their own ideas and compare notes with others, later taking flashlights apart to get even more information.
- The beginning of each unit lists the TEKS and objectives and the week when it's covered. For example, Unit 12, "Earth and Space" covers TEKS 3.9A and 3.9B. Unit lesson plans include differentiation based on student needs with the strategies in call-out boxes. The call-out boxes are located near the formative assessment notes for the teacher. The teacher can consider how students respond to the daily formative assessment task and then consider if students would benefit from using the differentiation options to either reteach, scaffold, or accommodate their current lesson, or extend the next day's activity. In Unit 17, the formative assessment includes, "Use students' responses to the *Reflect and Connect* section to check for the proficiency of the success criteria". The materials include options for differentiation such as scaffolding the text as students read the article "All Dried Up" and inviting students to illustrate and write a book related to the day's activity.

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. The materials guide adjusting to local time and scheduling constraints.
- The scope and sequence document in the *Teacher Edition* section online details how the teacher may accomplish all units of study within the course of the regular school year across 32 weeks of instruction. The materials allocate 4 weeks of flex into the schedule for either extension, reteaching, or increasing prior knowledge. In addition, materials include optional activities with suggested times. For example, in Unit 8, Week 15 "Engineering Design: Runaway Trucks," lesson "Refine Your Prototype" is listed for 45 minutes, and "The Driving Force of Motion" is listed for 25 minutes.
- Under the *Teacher Edition*, *the* "Publication Resources" includes a Table of Contents Chart listing 32 weeks of instruction covering the Science TEKS. These are organized by Introduction to Science and Engineering, Matter and Energy, Force, Motion, and Energy, Earth and Space, and Organisms and Environments. Unit 21 is titled "Year in Review" and includes optional materials to extend the learning.
- In the *Teacher Edition*, teachers reference a table of contents guide document. Each unit includes a chart about how many weeks it encompasses and how much time per week to plan

for the content. For example, Unit 5 represents Weeks 9 and 10 with each week's content representing 3.75 hours or about 45 minutes per day, if the teacher is teaching 5 days a week.

- Online materials include a *Help Center* providing an *Onboarding Guide* including instructions for *How to Reorder/Move Units, Weeks & Articles*. For example, the teacher may drag and drop units, weeks, and articles in the Table of Contents or move a week to another unit.

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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 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.

- Materials include an appropriate amount of white space and a design that supports and does not distract from student learning. For example, teacher materials such as lesson plans, table of contents, and assessment answer keys include appropriate margins and adequate white space. The materials utilize subheadings in bold font and follow a logical progression. The Student Editions begin with a Phenomenon, phenomenon graphic, phenomenon introduction, and activities with “Reflect & Connect” opportunities. Each phenomenon ends with an activity that has the student explain the phenomenon.
- Materials are designed in a way that does not distract from student learning. For example, white space is used strategically on the Student Edition pages in combination with contrasting colors and page borders to attract the eye yet not interfere with the content. The unit title, unit number, and week number corresponding to each unit are consistently displayed in the same place, using the same size style and font, providing easy identification for the student.
- Materials include a design that supports and does not distract from student learning. For example, the Teacher Edition materials follow the same format for each unit. Each Lesson Plan contains a unit objective, activity summary, standards coverage, materials list, teacher support resources, prior knowledge, and student edition preview. The Student Edition materials are separated with headers such as activity numbers to help guide the student through the materials. Within the activities, the pages are broken into tasks by task headings using colored blocks to divide tasks. The materials provide Teacher Edition and Student Edition slides to support student learning. Premade slides contain enough white space and avoid being crowded with too much information on one slide.

- Online materials are broken down with one activity on screen at a time. The viewer can access the subheadings at the top of the page to help with navigation between activities. The pages also include a “Next Article” or “Previous Article” button in large font at the bottom of the page to support the student in navigating between activities.

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

- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. In Unit 13, the student materials begin the lesson with the phenomenon comic strip that features characters who appear similar in age to grade-level students. The characters are discussing whether or not rainwater can come from the ocean. Units introduce the phenomenon through a comic strip, engaging students from the very beginning using age-appropriate characters relatable to students and background settings matching the topic or content presented. Characters are presented in a fun way, showing facial expressions and helping students make inferences about the scenario.
- The materials strategically embed photos and images to support student understanding of content. For example, in Unit 15, There is No U in Texas, students learn about erosion they see in color images of various landforms as they respond to open-ended questions and read corresponding texts. Unit 20, Activities 2 and 3 include an illustration of a Texas horned frog and a picture of the Chihuahuan desert.
- The materials consistently present Science and Engineering Practices (SEP) in a student-friendly, organized, comic format. Phenomenon comics appear at the beginning of the student materials, and subsequent activities are organized consecutively by number. Activity numbers and names are listed in a larger font across the student page. Graphic organizers are provided to connect to lesson plans and focus step-by-step on activity and unit learning objectives without including extraneous information.

Materials include digital components that are free of technical errors.

- Materials include digital components without technical errors. For example, the online Help Center includes an information page titled “How to Monitor Student Article Questions.” This document guides teachers to click on a link to learn more about what happens when students answer article comprehension questions incorrectly. The link successfully accesses the resource.
- Teacher answer keys contain accurate content information. For example, in Unit 15, There Is No U in Texas, students explain how deltas form. Teacher answers include correct responses that align with current scientific knowledge (water erodes land and carries sediment to the end of a river).
- Student online materials operate effectively with no errors. Videos and audio files play without lag time, and visuals load without errors. Links function properly for rubrics within the standards alignment resource and teacher tools.

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Indicator 9.2

Materials are intentionally designed to engage and support student learning with the integration of digital technology.

1	Materials integrate digital technology and tools that support student learning and engagement.	Yes
2	Materials integrate digital technology in ways that support student engagement with the 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.	Yes
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 with the integration of 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 the science and engineering practices, recurring themes and concepts, and grade-level content. Materials 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.

- Materials integrate digital technology and tools through the online student edition, student response and review opportunities, and online assessment options. Students have online versions of the printed Student Editions, which include videos, podcasts, and interactive response options. For example, in Unit 19, students view the online edition, read or listen to the phenomenon comic, type responses to short open-ended response questions, discuss a map of the Mississippi watershed before answering open-response questions in an answer box, respond with fill-in-the-blank responses, and type a persuasive letter in response to a prompt.
- Materials integrate podcasts and videos to build student understanding or prior knowledge about the concepts at the beginning of each unit. As unit lesson plans suggest, the teacher may show the videos to the whole group or enable them in the online Student Edition for individuals to view. For example, in Unit 15, There Is No U in Texas, teachers can share the background information podcast with students to build student knowledge about the unit. Additionally, the unit materials include videos about the “Sand Dune Simulation,” “Glacier Valley Formation,” “How to draw the Landform,” and the “Grand Canyon.” The teacher may show these as part of a whole group lesson or may assign them to students by adding them to the student edition online.
- The materials provide digital technology and tools that support student learning and engagement. For example, students access digital materials that are engaging and student-

friendly, with a colorful, comics-inspired weekly phenomenon that is accompanied by student-led questioning and inquiry. Students use the digital materials to complete activities as they work through the program, which includes fillable question blanks, clickable images, video, and audio files.

- The program uses gamification to encourage additional practice. Students collect coins as they progress through activities and play games such as crosswords and "Misspilled," for vocabulary and spelling practice, and accumulated coins are displayed to add motivation.
- Materials integrate digital technology and tools that support student learning and engagement. The activities embed short video clips throughout the activities within the units that provide brief explanations of the content and show relevant connections to the real world. The videos are short and engaging as they include visuals connecting the content to the real world. For example, Unit 10, Activity 1 Phenomenon Introduction Explore More includes a "Baking Up Electricity" video to help connect the lesson phenomenon and a real-world activity.

Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade level content.

- Materials integrate digital tools to support student engagement with science and engineering practices (SEP). For example, Unit 3, Activity 5 includes structure and specific questioning for students as they work through the planning and creative steps of making a plan for their task. Students answer specific questions and can save and revise their responses to questions such as in "Criteria: must hold a minimum of three pencils / Constraints: we can use _____ other materials" rather than simply providing a text box labeled "Plan."
- Materials integrate digital technology to support student engagement through embedded online videos, pictures, illustrations, and podcasts that motivate students to engage in their learning. For example, in grade 5, Unit 20, Activity 1, before introducing the phenomenon, teachers prepare students by asking them to pay attention to their thoughts, questions, and what they already know as they watch the video. Teachers encourage students to view the phenomenon through the lens of structure and function and remind them that investigating structure and function helps explain scientific phenomena. Students watch the "Built for Desert Life" phenomenon video. The Unit 10, Activity 1 introduction includes "Baking Up Electricity: Phenomenon Video" to help connect the lesson phenomenon and a real-world activity.
- Digital materials offer a text-to-speech software feature students can use to listen to the questions within the assessments. Students who may have difficulty writing may type in the answers in the Digital Student Edition. Also, certain types of questions, such as Labeling Questions and Grouping Questions included in the digital Student Edition's Unit Assessments, allow students to drag and drop answers instead of writing them in.

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

- Materials do not provide a video conferencing forum for student engagement in group discussions or projects. Materials do not provide a digital forum for students to post questions and/or give feedback. Materials do not provide a platform teachers can use to video conference with students nor an online collaborative forum for teachers and students to share resources.
- Materials lack opportunities for teachers and/or students to collaborate. For example, the Unit 16 online materials include opportunities for students to engage in a jigsaw activity by reading

articles about plastic waste. Students are directed to share a summary of their portion of the article with the group; however, there is a lack of ability for students to collaborate digitally.

- The materials provide limited opportunities for teachers and/or students to collaborate. For example, the materials do not provide a dedicated platform for students and teachers to collaborate, such as a web forum, blog, messaging, or video conferencing. While the lessons and activities are collaborative, teachers would have to use an outside platform or tool to foster collaboration or peer communication.

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

- Materials integrate digital technology that is compatible with a variety of learning management systems. The *Introduction to Texas Science 2nd-5th* grade explains that the Studies Weekly Online product offers links to Google Classroom. Teachers connect Studies Weekly to Google Classroom by matching Google Classroom email addresses and Studies Weekly usernames or by importing new students from Google Classroom to Studies Weekly Online.
- The materials integrate with several different learning management systems to import rosters and set up classrooms that teachers and students can use to post lessons, administer assessments, and communicate with students. Studies Weekly Rubric Tool (3-5) Sections 6 and 9 state that Texas Science can integrate with Classlink.
- The printable files include downloadable PDF files and links to videos, which may work with other learning management systems. For example, Unit 12 includes the "TX-03-SN Unit 12: Prior Knowledge Article," which provides information for teachers to download and utilize with their LMS, such as assigning the article for homework.

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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.

- The digital materials provide developmentally appropriate text that aligns with the grade's Lexile levels. In Unit 7, Activity 1, the "Force of the Athlete" article level is 640L, falling within expected reading levels for the year. The digital materials also provide articles that convey the needed information at a developmentally appropriate length. In Unit 7, Activity 1, the "Force of the Athlete" article contains 119 words and 1 paragraph, allowing students to complete the reading within the 45 minutes allotted for Activity 1.
- The digital materials are developmentally appropriate for the grade level. Digital technology and online components include easy-to-navigate functions, such as "Next Article" and "Previous Article" buttons at the bottom of the pages and breadcrumb subtitles at the top of the page. The webpage displays large print for easier reading, arrows at the bottom of the page to read on or go backward for review, a blue "Save" button to save their progress and continue later, and a green submit button to turn in their assignment.
- 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. For example, Unit 11, Activity 1, the "Phenomenon Introduction," provides an introductory video for students to watch before they start the activity. In addition, the materials have an online-text reading feature supporting students who may benefit from this by reading the text to them. This feature is also part of the extended reading section where the TEKS are explained to the students.

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

- Materials guide teachers in the use of embedded technology to support and enhance student learning, such as training videos, webinars, and resource files. In the "Introduction to Texas Science 2nd-5th Grade" document, the online materials section describes how teachers may use the online tools and resources to enhance student learning. This section describes the various types of tools available and some ways teachers may customize the student experience, such as enabling audible content, revising questions, or adding additional response types within lesson content. For example, in the "Training and Resources," teachers may view videos about how to customize student content to edit, revise, or add to the online materials. The teacher resources provide directions for teachers to enable additional content or reorganize units to better align with the student's instructional needs.
- Materials provide teacher guidance for the use of embedded technology. For example, the product website provides 22 informational articles to guide teachers in using program technology. Articles include but are not limited to: "How Does Studies Weekly Integrate with LMSs," "How to Use Google Classroom with Studies Weekly," and "How to Navigate Rostering and Integrations." Unit 13 Lesson Plan, the "Student Support Resources," includes a table to show teachers where the student media supports are embedded.
- Teacher unit/weekly guidance documents recommend when to use technological components of the program with students, such as videos and images. For example, in Unit 19, Activity 8, students watch the *Dead Zone* video before generating questions about the phenomenon with a partner. In grade 5, Unit 8, the "Unit Lesson Guide" prompts the teacher to prepare the students by asking them to pay attention to their thoughts and questions, as well as what they already know, as they observe the engineering scenario presented by the "Mountain Road" image.

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

- The materials include resources available for the teacher to provide to the parents and caregivers to support student engagement with digital technology and online components. For Example, "Tips for Caregivers to Support Online Engagement" infographic gives five tips for caregivers and students to Experience, Explore, Learn, and Review together at home.
- The materials include a teacher resource designed to help communicate with parents and caregivers about the curriculum. The resources provided are in PDF form and are intended to be printed for students to carry home or emailed. The document "Tips for Caregivers to Support Online Engagement" provides guidance for parents to review the online videos used in class and suggests questions to ask, such as, "What do you think causes this?" Parents also explore the unit activities and "TEKS Explained" articles.

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Materials provide online student access from home. For example, the “Home Learning Letter” provided for parents includes a brief reminder, in the form of a small clipart of a blackboard instructing parents to "check out your student's edition of Studies Weekly, then go online for more great content!" The materials also include a document, “Tips for Caregivers to Support Online Engagement,” which provides guidance for parents to review assessments that students have taken, connect to online unit materials to address mistakes made and use the online feedback option to communicate questions to teachers.