TPS Steam into Science Grade 2

TPS Steam into Science Grade 2 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 K	100%	100%	100%	100%
Grade 1	100%	100%	100%	100%
Grade 2	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 some 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 somewhat designed to build knowledge systematically, coherently, and accurately.
- The materials provide some educative components to support teachers' content and coherence knowledge.

Section 4. Productive Struggle

- The materials provide some 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 somewhat promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.
- The materials provide some 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 somewhat clear and easy to understand.

Section 7. Supports for All Learners

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

Section 8. Implementation Supports

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

Section 9. Design Features

- The visual design of materials is somewhat clear and easy to understand.
- The materials are not designed to engage and support student learning with the integration of digital technology.
- The digital technology or online components are not developmentally and grade-level appropriate and do not 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 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 the recurring themes. Materials strategically and systematically develop some of 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 the following:

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

- Materials provide some opportunities for students to develop, practice, and demonstrate mastery of grade-level-appropriate SEPs, but often, the lessons are above-grade-level content. In Chapter 8, Flower Surprise, there are many above-grade-2-level references—for instance, photosynthesis and stomata. Second graders learn and know basic needs and physical characteristics for plant survival in their environment.
- Materials provide some opportunities to develop, practice, and show mastery of grade-level appropriate scientific practices. For example, in the *Teacher Textbook*, the lesson is about weather forecasting severe weather storms. Students will conduct a scientific investigation, and the teacher will show the steps of the investigation. Students are to follow the example and then write their own, not practicing the scientific practices by doing the investigation.

- Materials provide multiple opportunities for practice and mastery of engineering practices. For example, a Science Is a Verb (SIAV), and a lesson in the *Teacher Textbook*, provide teacher guidance as students evaluate how to group objects using inquiry. The questions start students on their inquiry journey using and applying their scientific and engineering practice skills. Also, students use scientific practices to complete mini-experiments, create a risk assessment and identify safety hazards. In the *STEAM Activity Guide Teacher Edition*, students study scientific practices and focus on questions, answers, and problem-solving. In the STEM project, "Window Shopping," students follow the DAPIC process, which is described in the teacher guide. Students Define, Assess, Plan, Implement, and Communicate. In this learning cycle, students experience the scientific inquiry method as they explore how light and colors interact. Careful attention to recording data is important. They also work on the physical properties of paper structures, magnets to control movement, and marbles rolling and sliding down ramps. They then apply their knowledge as they design and build a window display. Students continue to experiment with properties in the art projects that follow and, within those projects, apply scientific practices. Students create an experiment to show that one sound, light, or heat energy when increased or decreased, can change the appearance of an object.

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

- Materials provide multiple opportunities for students to use recurring themes in making connections between and within overarching concepts. Multiple activities reference patterns, systems, structures, and functions to allow recurring themes. Multiple investigations reference patterns, systems, structures, and functions to allow recurring themes. One of the lessons is "How Does Warming Change a Material?" followed by "Heating and Cooling." In the *Learn by Doing Activity Reader Book*, the change to materials through heating or cooling is covered in the chapter text, where students explore how candles are made through melting wax, and also in Idea Box 1 and Activity 8. This concept is reintroduced in Chapter 5 where students explore the physical properties of materials and how they can be changed; this includes Idea Box 4, "Melting and Freezing."
- Materials provide some opportunities for students to use some of the TEKS-defined recurring themes in making connections between and within overarching concepts. Some activities reference patterns, systems, structures, and functions to allow recurring themes. For example, In the *Learn by Doing Activity Reader Book Teacher Edition*, force is covered in Chapter 1 through the chapter text and Idea Box 2, Activity 3, Activity 4, and Activity 6. It is covered again in Chapter 3, where force is explored in its application to erosion caused by water and air and explored using a stream table in Activity 10. This is an example of making a connection between overarching concepts.
- Materials provide some opportunities to connect within overarching concepts and recurring themes however, they are not clearly defined in the teacher guidance. Student textbooks center around five core content areas: Scientific and Engineering Practices, Matter and Energy, Force, Motion and Energy, Earth and Space, and Organisms and Environments. The content units do not reoccur throughout the materials. The Scope and Sequence also identifies the same five core areas. The materials provide some opportunities for the overarching concepts to connect. For example, one of the lessons is "In What Ways Can Water Change?" followed by "What Happens to Materials When they are Heated and Cooled?" Lastly, the lesson is "Heating and Cooling" to end the concept of heat causing change. This sequencing allows to make

connections sequentially but lacks teacher guidance on encouraging student connections across multiple units throughout the curriculum.

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

- Materials provide some strategic guidance and connections to the grade-level TEKS. For example, In the Teacher Textbook, the TEKS are at the top of the pages, and the activities listed follow those TEKS, and they are appropriate for the content and grade level; however, higher level content is provided in many of the materials with no clear explanation that it is intended for above level learners. For example, in the *Learn by Doing STEAM*, Activity 1, "Rosa's Scores," student material includes critique and comprehension which is not grade-level appropriate content for grade 2 as defined in the TEKS. Materials do offer a variety of instructional materials it is not always clear what is intended for below-level, on-level, and above-level learners.
- Materials provide some systematic guidance to develop students' content knowledge. The Learn By Doing Teacher's Guide includes an Essential Content Guide that shows how the program is structured and gives an overview of the sequence of units, showing how the program systematically presents content and concepts for students to make connections between content areas throughout the program. A Scope and Sequence document that illustrates how content builds within each grade, with scaffolding information in each *Teacher Textbook* lesson plan and prior knowledge in each lesson plan. In the *Teacher Textbook*, the lessons build on having students engage their prior knowledge for the new lesson. For example, the lesson "Making Changes" helps build student background knowledge before moving on to the lesson "Combining Materials" and then moving on to the lesson "Things Can Be Done to Materials to Change Their Physical Properties."
- Materials provide an explanation of the rationale for the sequence of units. The Teacher Program Guide states, "Our team utilizes a by standard, strand and/or learning cycle structure which engages students in active interaction with the content." For the *Learn by Doing STEAM Reader Books*, there are two documents to refer to the Pedagogy behind the approach – Teaching Pedagogy – Storytelling and STEAM, and Scope and Sequence. These documents explain the background for the pedagogy behind the *Learn by Doing STEAM Activity & Reader Books* and how the book content is structured.

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

- Materials provide some opportunities for questioning and for students to plan and conduct classroom, laboratory, and field investigations. For example, the STEAM Activity Guide includes a Scientific and Engineering Practice Project that allows students to plan and conduct an open-ended engineering project. In the Learn By Doing STEAM Activity Guide, there are opportunities for students to ask questions while investigating the "Apollo Mission Research Project," students are asked to create questions they want to discover.
- Materials provide some suggestions on problem-solving to make connections across disciplines. For example, the Learn by Doing STEAM, Activity 1, "Rosa's Scores," could be considered as making connections across disciplines but not relating it to the science; it is critique and comprehension. There are financial literacy, money, and place value connection activities. In the

STEAM Activity Guide, there are ELA and Math connections provided. Students should be able to use the data collected to propose a solution to the problem “How can I make the pattern formed by my pendulum larger?” and "Which material is best at causing a marble to change direction?"

- Materials provide some opportunities for students to ask questions and conduct investigations, engage in problem-solving to make connections across disciplines and develop an understanding of science concepts. In a STEM activity called "Rock Hard," students will solve the problem of the mini flagpole and how it was damaged. They test various solutions and eventually mix concrete.

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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.	PM
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

Partial Meets | Score 2/4

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

Materials partially 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.

- Materials embed phenomena in some lessons to support students in constructing, building, and developing knowledge within the teacher edition and teacher textbook materials; however, the teacher guidance is not clearly defined. Materials reference a Phenomena Classroom Chart, but it is unclear where the resources are for the chart and when to build it. For example, The STEAM Activity Guide Teacher Edition provides a Vignette of each Instructional Segment. It provides guiding questions and anchoring phenomena. The guiding questions in the Organisms and Environment segment include: How can we determine what plants need to grow? How do plants depend on animals? How many types of living things live in a place? How can we tell? The Anchoring Phenomenon is the "Plant's dependency on other living things." In the Learn by Doing Steam Activity Reader, students will experiment to demonstrate gas droplet formation on leaves suspended in water. Students will use the scientific method to observe and hypothesize based on the teacher's question. The teacher asks, "What would you expect to see if they placed a leaf underwater in a sunny location, and why?"

- Materials provide some opportunities for students to develop, evaluate, and revise their thinking as they figure out phenomena and define/solve problems. For example, In the Earth and Space unit, the teacher asks students if they know what a tornado is. The Teacher's Guide directs the teacher to watch clips "you can find online or from a movie" to describe it and add questions to the Phenomena Class Chart.

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

- Materials provide opportunities to leverage students' prior knowledge and phenomena-related experiences. For example, in the Matter and Properties Unit, the teacher introduces the activity of holding up a piece of clothing, asking students what it is, and identifying the properties of the materials. The Teacher Textbook provides common misconceptions and how to address them. The Matter and Properties unit states, "Students may find it difficult to understand that the material is the same before and after you have done something to it. Have them consider whether you have added anything to the substance or taken anything away in each case. Ensure students understand that you are not referring to the fabric when you use the word 'material' This is likely to be the only instance they have come across of its use." In the Teacher Textbook, at the beginning of each chapter, there is a section called "The Science," the information needed to activate student background knowledge for the chapter.
- Materials intentionally leverage students' prior knowledge of engineering problems. For example, in Learn by Doing Activity Steam Reader, Activity 9, students will design and build a device that uses sound to solve the problem of communicating over a distance. Students will use the design engineering process and the background knowledge from the chapter. Students are assigned the challenge and work in groups. In the Learn by Doing Activity Steam Reader, students use their understanding of physical properties and engineering capabilities to design and build a bridge.

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

- Materials guide the teacher on the goals behind each phenomenon and engineering problem. For example, in the Learn by Doing STEAM Activity Reader, there are objectives that teachers have listed that are expected to be met by following the lesson. The Teacher Textbook lessons contain an Objective that outlines the scientific goals for each lesson. In the Combining Materials lesson, the objective states, "Students will be able to combine materials that, when put together, can do things that they cannot do by themselves (such as building a tower) and justify the selection of those materials."
- Materials guide teachers on the scientific concepts behind each phenomenon and engineering problem. For example, the Teacher Textbook lessons contain a section called "The Science" that outlines the scientific concepts for each lesson. The Combining Materials lesson states, "We use different materials for different purposes according to their properties. We combine materials because they can do things that they cannot do alone." The Teacher Guide clearly outlines the order of lessons, starting with TEKS and vertical alignment, then assessment, and concluding with a description of "How the Content Supports Teachers."

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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.	PM

Partial Meets | Score 3/6

The materials meet the criteria for this indicator. Materials are somewhat 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 an 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 sometimes 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 are vertically aligned and designed for students to build and connect their knowledge and skills. For example, in the L*earn By Doing STEAM Activity Reader Book - Teacher Edition,* when looking at a specific TEKS, Earth and Space, regarding Earth materials, the grade level materials explore shapes, color size, and texture and make observations as a foundation for the next grade level. In 2nd grade, students build a tower and talk about the properties and texture of rocks to make the tower stable. In the STEAM Activity Guide, "Amelia Rose Explores Earth and Space," the teacher reads through the story and activity. The student then completes a journal about plants and the types of soils. The students write about the color, textures, and now water retention. It is aligned with the kinder and 1st-grade lessons.
- Materials are designed to build content knowledge within each chapter. For example, the Teacher's Guide scaffolding information is included at the beginning of every chapter.
- Materials are designed to connect knowledge and skills across grade levels. Examples include the Project Based Lessons in the Teacher Textbook, which list out the scaffolding between grade levels for the TEKS. In the Teacher Textbook, the TEKS for the prior and following grade levels are listed under the section labeled "Scaffolding." The Teacher Textbook - Grade 2 Science, in the Heating and Cooling chapter, lists the objectives for kindergarten and first grade and the TEKS for third grade related to heating and cooling in the Scaffolding section.

- Materials are aligned and provide connections to prior knowledge. Materials offer a K-8 program and provide a grade-level vertical alignment document demonstrating how students build and connect knowledge across grade levels. The Teacher Supports show how the materials are vertically aligned. The document titled "Horizontal and Vertical Alignment Information" states, "As students progress within each grade, the STEAM storybooks are the first level in a series of TPS curricular materials, horizontally aligned to allow the students to engage in a curriculum that builds on knowledge and skills aligned with the Texas Essential Knowledge and Skills."

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

- Materials are intentionally sequenced to scaffold learning in a way that allows for deeper understanding. For example, in the Learn By Doing STEAM Activity Reader Book - Teacher Edition, in Chapter 3, "Lost in a Forest," the teacher reads the story. The students do activities related to the story, then progress to the Design Engineering Challenge at the end of the unit to demonstrate a deeper understanding. In the Teacher Textbook, there is sufficient evidence that materials are intentionally sequenced to scaffold learning in a way that allows for deeper understanding. In "How Do You Group Objects?" the teacher starts with background information, then guided questions and additional hints. Then the students conduct mini-experiments to separate and compare objects.
- Materials present content in a way that builds complexity within and across units. In the Teacher Guide, students begin learning about matter and its properties. Students start by taking clay and making objects and then changing those objects to make new ones. For the final investigation, students will create a bridge that will need to hold up to a strength test.
- Materials include a concrete progression before abstract reasoning when presenting concepts that allow for an increasingly deeper conceptual understanding. For example, in the STEAM Learn By Doing, Chapter 2, Activity 3, students experiment with light to examine the behavior of a light source before drawing a representation of their results in the book. In the Teacher Textbook chapter, "Matter and Properties," students experiment to alter several materials using heat before reading about heating and cooling and answering questions in the book. In the Teacher Textbook, the lesson begins with students talking about properties and looking at different objects. Later, students use mathematical concepts to compare strength and flexibility with rulers.
- Materials include a progression of concrete and representational before abstract reasoning when presenting concepts that allow for an increasingly deeper conceptual understanding. In the Teacher Textbook, students begin learning about matter and how to describe and classify matter. Students will use several different physical properties to compare and separate objects. Students will be able to name a property that they can test and describe what classifying objects means.
- Materials are intentionally sequences to scaffold learning. For example, in the Learn By Doing STEAM Activity Reader Book - Teacher Edition, Chapter 4, "Zane's Birthday Candle," the information is scaffolded and deepened with complexity through the idea boxes. In idea box 1, students compare and contrast the physical properties of water and a candle. In idea box 2, Students mind map the physical properties change. In idea box 3, students use 3D solids to describe the physical properties of a candle. In the Teacher Toolbox - Grade 2 Science, students use what they have learned in the Learn By Doing STEAM Activity Reader Book to complete the activity pages in the "How do you make it Change" lesson.

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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 science and engineering practices. For example, in the Learn by Doing STEAM Activity Reader, in the Moon Mystery unit, the core concepts are present, recurring themes are introduced, and science and engineering practices are also present in the "Apollo Research Project." The short story describes the missing moon in the Learn By Doing Steam Activity Reader. In the story, the students remember that the Moon never leaves and is in the new moon phase. The Learn By Doing STEAM Activity Reader Book - Teacher Edition, Chapter 3, "Lost in a Forest," introduces measurement, recording, and graphing of weather information and identifying patterns in the data, along with the importance of weather and seasonal information for making choices in clothing and activities.
- Materials clearly and accurately present grade-level-specific core concepts. For example, in the Teacher Textbook, the core concepts are evident throughout the Project Based Lessons. In the Teacher Textbook, "Force, Motion, and Energy," students demonstrate and explain that sound is made by vibrating matter, as aligned to the TEKS.
- Materials clearly and accurately present engineering concepts. Students design and create their engineering practice project in the STEAM Activity Guide. In the Learn By Doing STEAM Activity Reader Book, in Chapter 5, "Build a Bridge," students use the Engineering Design Process to create a bridge from popsicle sticks. Students use the core concepts of physical properties.
- Materials present grade-level appropriate recurring themes and concepts. According to the Teacher Program Guide, one of the approaches TPS uses to teach science is storytelling. "They begin their learning journey with a story relevant to their lives with scientific concepts embedded within it." "The activities sections at the end of each chapter allow the student to explore the scientific topics in activities that engage them physically and mentally." Although materials present grade-level specific core concepts, no clear, concise road map exists.

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

- Materials sometimes expect mastery requirements that are outside the boundaries of the main concepts of the grade level. For example, in the traditional lesson, Energy, the materials introduce the idea of energy changing from one form to another and state the focus TEKS is “2.6A classify matter by observable physical properties, including texture, flexibility, and relative temperature, and identify whether a material is a solid or liquid.” The lesson does not reflect the content of the student expectation and students encounter the focus question number 5, “How does electricity cook your dinner? It changes into heat energy.” Not only does the mastery requirement fall outside the boundaries of the grade level, but the lesson materials do not reflect the boundaries of the TEKS it is supposed to be targeting.
- Materials include some lessons where the mastery requirement falls outside the boundaries of the main concept of the grade level. For example, in the lesson Making Changes, the idea of state changes is introduced. While the TEKS mention changes to matter’s physical properties such as “melting and freezing” the idea of state changes is introduced in grade 3. However, in the Test Yourself section of the lesson, students must recognize in question 1 that “When you melt a material, you are changing its state as well as the temperature.” The boundaries of the grade level indicate that changes in temperature account for changes such as melting and

freezing, the concept of these being state changes is inappropriately introduced in this lesson and then expected as a demonstration of mastery.

- Materials sometimes daily to stay within the boundaries of the main concepts of the grade level. For example, in the lesson Combining materials students are learning about combining matter to form new objects and that you choose things based on the physical properties that are needed. The lesson uses a clever example of several different types of shoes and the different properties and introduces the term “waterproof” for the lesson as well as flexible. While flexibility is listed as a term to be mastered in grade 2, waterproof is not present in the K-5 science standards. While this could be an opportunity to expose students to upper level vocabulary, waterproof is instead listed as a key word for the lesson.

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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.	PM
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

Partial Meets | Score 3/6

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

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

Evidence includes but is not limited to:

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

- The introductory materials in the Teacher Textbook state, "Science Concepts, scientific practices, and engineering are introduced in this first component," in reference to the *Learn by Doing* Activity Reader. However, neither the Teacher Textbook nor the *Learn by Doing STEAM Activity Reader Book* indicates how or when scientific practices or overarching concepts are addressed in each section or within each topic. The inclusion of the Horizontal Alignment Chart, the TEKS 1-5 Content Guides, and the update of the pacing guide provide a document that shows when scientific and engineering practices and recurring themes are addressed. This provides minimal support to the teacher in understanding how this or how content builds horizontally or vertically.
- The Program Guide somewhat supports teachers with the vertical and horizontal alignment of the program. It references the use of a storybook "to provide an introduction to in a personally relevant manner." The STEAM Storybook is followed by the activities section. Materials say, "These activities build upon communication, creativity, critical thinking, and collaboration." Materials state, "As students progress through the grade levels, the STEAM storybooks provide opportunities to develop knowledge and skills gradually built through vertical alignment through the TEKS. The description in the Program Guide does not fully support teachers, as it does not

reference specific learning. In the *Learn By Doing STEAM* Activity Reader Book, Teacher Edition, there are several documents that, when used together, provide specific learning.

- Materials include some guidance that supports teachers in understanding how new learning connects to previous and future learning across grade levels in the Scaffolding Information within the lesson. In the beginning of the Traditional lessons, the Scaffolding Information section provides some information on knowledge students should already have, then lists the TEKS for the previous and future grade levels. Listing the TEKS does not provide enough guidance about connection to future learning. Materials provide minimal guiding documents or information that support teachers in understanding how new learning connects to previous and future learning across grade levels.
- The instructional materials include some guiding documents that support teachers in understanding how new learning connects to previous and future learning across grade levels. For example, The *Learn By Doing STEAM* Activity Reading includes an “Essential Content Guide” that describes what science, math, and ELAR concepts are taught in each unit. There is a horizontal and vertical alignment information document in the Online Library for Teacher Support. This provides general information and does little to help teachers understand how their specific grade-level content connects to prior or future learning.

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

- Materials contain explanations and examples of science concepts for teachers. For example, in the Teacher Textbook, The Science section of the lesson is a synopsis of what students have learned and will learn. Background and Preconceptions sections are also in the lessons to help teachers understand before starting the activities. The background information for teachers provides explanations and examples of science concepts. In the Teacher Textbook, before each experiment, the materials offer a section titled "Background and Misconceptions." In the experiment, "How Do You Make It Change?" the Background and Preconceptions section tells the teacher how to prepare the clay shapes for the experiment, provides questions, one misconception, and an extension
- Materials contain explanations for teachers on grade-level misconceptions to support teacher’s subject knowledge. For example, in the Teacher Textbook, the Common Misconceptions section helps the teacher "know better." Background and Preconceptions sections are also in the lessons to help teachers understand before starting the activities. In the "Making Changes" lesson, the section provides background information about the properties of matter. The same lesson contains a section titled "Common Misconceptions" that states, "Students may find it difficult to understand that the material is the same before and after you have done something to it. Have them consider carefully whether you have added anything to the substance or taken it away. Ensure students understand that you are not referring to the fabric when you use the word 'material.' This is likely to be the only instance they have come across of its use."
- Materials guide teachers on the recognition of barriers to student conceptual development. In the Teacher Textbook, "Scaffolding" describes their expectations for the future in science with the concept.

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

- Materials do provide a purpose or rationale for the instructional design. The Teacher Program Guide in the Support Notes for Teachers states that the content scaffolds as the characters go alongside the diverse students. The Teacher Program Guide K-8, under the section Support Notes for Teachers, gives information about the rationale of how the program was designed. For example, "The Steam Storybook was designed with two key purposes: first to teach science through the prism of STEAM, science, technology, engineering, and math as an approach more relevant to students' lives."
- Materials explain the intent of the instructional design of the program. The Teacher Program Guide describes the philosophy of science teaching and learning. They explain the publisher's philosophy that we learn best by doing and the importance of scientific understanding for all students. They also explain the science teacher's role in developing critical thinking, problem-solving, and an appreciation of the scientific process. The Teacher Program Guide describes the Teaching Pedagogy - Storytelling and STEAM. The guide references the research on structure strategies and more information on why teaching science through storytelling is important.

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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.	PM
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

Partial Meets | Score 2/4

The materials partially meet the criteria for this indicator. Materials provide some 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 some opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts. Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts. Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

Evidence includes but is not limited to:

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

- Materials support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. In the Learn by Doing STEAM Activity Reader, materials provide reading through storytelling, thinking through the idea boxes, and acting through the design and engineering pieces. There are writing prompts and opportunities to describe what they know or have learned. In the Student Textbook, there are writing activities. Students read like scientists in the Learn By Doing STEAM Activity Reader Book. Additionally, this component includes idea boxes to support the teacher in having students think like scientists and stimulate critical thinking through class discussion of the chapter texts. Following each chapter, activities allow the students to act as scientists or engineers investigating and designing engineering solutions. The activity sections also include opportunities for the students to engage in age-appropriate letter-word analysis, writing, and math. In Chapter 6, "Drip, Drip, Drip," students read and think like scientists and engineers about the topic. In Activity 3 of the same chapter,

students think and act like scientists to experiment to compare saltwater and freshwater. After listening to the story, "Where is Louis?" In the STEAM Activity Reader, students test the effect of light on color perception. In the Learn by Doing STEAM Activity Reader, there is consistent reading through the storytelling, thinking through the idea boxes, writing predictions and observations, and acting through the design and engineering pieces.

- Materials provide learning activities that support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. In the *STEAM Activity Guide*, students read, write, think, and act like scientists. In "It's a Worm's Life," students research what habitat is needed for mealworms before creating their habitat. Students then observe and record observations about ten mealworms as they progress through their life cycles.
- Materials in the Teacher Program Guide provide a philosophy of science teaching and learning as The materials provide teachers with guidance on labs in the "Science is a Verb" explanation found in the Teacher Textbook that partially supports sensemaking. For example, the materials state, "The critical portion of any lab is to have a thorough discussion of the results and student thinking after the experiment is complete. It is suggested you take as much time as the experiment to have this discussion with students. The real learning occurs not from hands-on experiments, but from a deep discussion of the experiment while making connections to the concept they are learning." The guidance supports sensemaking by taking the lesson beyond a hands-on investigation and building conceptual knowledge through discussion.

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

- Sometimes, the materials provide text that is not grade-level appropriate. For example, in the traditional lesson, Energy, the materials introduce the idea of energy changing from one form to another and state the focus TEKS is "2.6A classify matter by observable physical properties, including texture, flexibility, and relative temperature and identify whether a material is solid or liquid." The lesson does not reflect the content of the students' expectations and students encounter the focus question 5, "How does electricity cook your dinner? It changes into heat energy."
- The materials sometimes provide scientific texts that are not grade-level appropriate and impair students' ability to gather evidence and develop an understanding of the concept. For example, in the lesson Combining materials, students are learning about combining matter to form new objects and that you choose things based on the physical properties that are needed. The lesson uses a clever example of several different types of shoes and their different properties and introduces the term "waterproof" for the lesson and flexible. While flexibility is listed as a term to be mastered in grade 2, waterproof is not in the K-5 science standards. While this could be an opportunity to expose students to upper-level vocabulary, waterproof is instead listed as a keyword for the lesson.
- The material sometimes provides appropriate scientific text for the targeted grade level. For example, in the Learn By Doing STEAM Activity Reader Book for Grade 2, the story spends several pages discussing linear and nonlinear motion instead of using grade-level appropriate language.

TPS Steam into Science Grade 2

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. In the Learn by Doing Steam Activity Reader, Student Edition, students explain how sand was moved to the dunes after learning how wind and water move soil. Students write about the answer. In the Learn by Doing Steam Activity Reader, Teacher Edition, students investigate the needs of plants and discuss what had the biggest impact on plant growth. Next, students record whether their hypothesis is correct. In the Learn by Doing Activity Guide, students fill in the blanks, short answers, match, fill in tables, and graphic organizers.
- Materials provide multiple opportunities for students to communicate thinking on scientific concepts in written and graphic modes. In the Student Textbook, in the investigation, "Pendulum Swing Art," students record their observations in written form and by drawing. Students draw pictures of their paint design that resulted from the cup swinging. Students also write to answer questions about the investigation. In the "How Much Is Enough?" investigation, students observe the distance the rubber band stretched. Students then write to answer questions about forces. In the Student Textbook in the Tools unit, students draw and label a tool. In the How do You Group Objects unit, students use graphic organizers to classify objects by size, temperature, and weight. In the Properties unit, students draw a picture and then complete a fill-in-the-blank table for the investigation.
- Materials provide multiple opportunities for students to engage in various modes of communication to display understanding. For example, in the Student Textbook, the Energy unit, the students communicate thinking on scientific concepts in written and graphic modes, with data tables and open-ended written questions. The Learn by Doing STEAM Activity Reader, Student Edition, has many opportunities for displaying understanding. Throughout the reader, there are fill-in-the-blanks, open-ended questions, drawing observations and ideas, and graphs for data. In chapter 4, "Who Shut That Door?" there are scenarios for understanding magnets and how they work, as well as tables to collect data and analyze.

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. In the Steam Activity Guide Teacher Edition, students experience the scientific inquiry method as they explore how light and colors interact. As students experiment with the light and colors, they record information in their journals. Students answer questions in their journals about the different results. Bridges will be tested by adding one gram of weight. Students then discuss which bridges were the strongest and compare them.
- Materials support students to act as scientists and engineers who can productively struggle. The student textbook provides student engagement and perseverance of concepts through productive struggle while acting as engineers in the Scientific and Engineering Practice Project in the STEAM Activity Guide. In this project, students find a problem, design, and engineer a solution. Students conduct the research, plan, build a mock-up, prototype, and test it. They evaluate the results to determine how to make it better.

TPS Steam into Science Grade 2

- Materials support students to act as scientists and engineers who can make sense of concepts. The student textbook provides student engagement and perseverance of concepts through productive struggle while acting as scientists and engineers in STEM Projects in the STEAM Activity Guide. In the "Window Shopping?" project, students explore how light and colors interact and record data about them. They also work on the physical properties of paper structures, magnets to control movement, and marbles rolling and sliding down ramps. They then apply that knowledge to build a window display.

TPS Steam into Science Grade 2

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.	PM
2	Materials include embedded opportunities to develop and utilize scientific vocabulary in context.	PM
3	Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.	PM
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.	PM

Partial Meets| Score 2/4

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

Materials prompt students to use some evidence to support their hypotheses and claims. Materials include some embedded opportunities to develop and utilize scientific vocabulary in context. Materials integrate some argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. Materials provide some 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.

Evidence includes but is not limited to:

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

- Materials somewhat prompt students to use evidence when supporting their hypotheses and claims. In Chapter 8, Activity 5, Part B, in the STEAM Learn By Doing Activity Book, students investigate what plants need to survive. Students work in groups to create a hypothesis of what they expect to be the outcome of the investigation and explain the rationale behind their hypothesis. Students test their hypotheses, then analyze and discuss the results. Materials state, "Discuss the results with students. Which factor had the biggest impact on plant growth?" In the Project Based Lesson, "Can You Change Sound?" in the textbook, students investigate if they can change the sound of kazoos. Students first create a prediction of what they think the sound will be before poking a hole in each kazoo. Students test their hypotheses, then analyze and discuss the results. After testing each one, there are questions, including, "Did all the samples the teacher had sound the same? Would it sound the same if you used a smaller tube?"
- In Learn by Doing Activity Reader, Chapter 8, Activity 5, students will work in small groups and test and write a hypothesis. Students will record their methods and results in their notebooks. In the Learn by Doing Steam Activity Reader, Chapter 3, Activity 10, students investigate erosion using a stream table. Students create a hypothesis and write a rationale. They will test their

hypotheses and write the results in their journal. However, teacher guidance on how to help students learn how to do this is unclear or not found.

- Materials provide some opportunities for discourse. The materials in the Learning by Doing STEAM Reader - Teacher Edition prompt students to use evidence to support their hypotheses and claims. For example, summing up activities 1-3 in Chapter 1, the students are prompted to "communicate their findings" and engage in scientific discussions. In the Teacher Textbook in the PBL section, they gather evidence to support or refute students' ideas about causes. However, teacher guidance on how to help students learn how to do this is unclear or not found.

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

- Materials include some embedded opportunities to develop, utilize, and apply scientific vocabulary in context but do not include opportunities to develop and utilize scientific vocabulary after having a concrete or firsthand experience. In the STEAM Learn by Doing Activity Book, students read chapters about science content with embedded scientific vocabulary. Students then apply the vocabulary to some of the activities following each chapter. For example, In Chapter 6, students read about saltwater and freshwater. The embedded vocabulary words include "dissolving ocean, salt, saltwater, and freshwater." In Activity 3, students utilize the vocabulary words to create saltwater and compare how things sink and float in saltwater versus freshwater. In Chapter 7, students read about animal adaptations. The embedded vocabulary words include "breath, gills, habitat, lungs, prey, shelter, and survive." In the following activity, 10, students utilize the vocabulary words in the text to record and compare in drawings how the structures and behaviors of animals help them find and take in food, air, and water.
- Additionally, in the Learn by Doing Steam Activity Reader, students learn vocabulary through the read-aloud story. In Chapter 3, after reading through the read-aloud activity 11, students will review learned vocabulary words. In the Learn by Doing Steam Activity Reader, under the vocabulary guidance, students should demonstrate language readiness by asking the students to use words in a sentence.
- Materials include word work activities with science vocabulary. In the Learn By Doing STEAM Activity Reader Book, vocabulary words are printed in bold. Students are then asked to complete an activity to pronounce the words in syllables, sort by initial sound, sound out the words, and match the words to a picture.
- Materials provide defined vocabulary lists. In the Teacher Textbook, there is a section labeled "Key Words." It is evident that these are the vocabulary words for the unit. They are listed with the definition beside each word. In the Teacher Textbook, in the Properties lesson plan, the teacher is instructed to hold up a ball and discuss. The teacher "elicits" properties and then tells them about flexibility.

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

- The materials provide some opportunities for students to develop how to engage in discourse. The Learn By Doing STEAM Activity Reader contains some opportunities for students to develop how to practice argumentation and discourse. In Chapter 3, Activity 1, students test the effect of light on color perception and discuss the results. The text says, "Discuss the results with the students after they have communicated their findings," and "During the discussion, other

students should listen and engage respectfully in scientific discussion." These supports provide appropriate guidance for students to develop participating in discourse skills.

- The materials provide some opportunities for students to develop how to engage in discourse. The Learn By Doing STEAM Activity Reader contains some opportunities for students to develop how to practice argumentation and discourse. The teacher's textbook contains some opportunities for students to develop how to practice argumentation and discourse. In the Energy lesson, students learn that different forms of energy are important to everyday life. The text says, "Ask the students to prepare a presentation about the information learned in today's lesson" and "Ask them to consider their audience when preparing their presentation." It also says, "Students should be encouraged to listen carefully to each other's presentations, make notes and questions, and engage in respectful discussion on the strengths and weaknesses of each other's presentation." These teacher supports begin to develop argumentation and discourse skills with students
- The materials integrate some argumentation and discourse within stages of the learning cycle. However, they lack guidance to teachers in developing these skills into scientific arguments. For example, teacher guidance suggests that students will share their group designs on activities in the Learn by Doing Steam Activity Reader. The teacher will ask them how they would improve their design and why they designed the device the way they did. In this activity, the teacher asks guiding questions for the discourse rather than the students, and there is no opportunity for argumentation. In another example, students are asked to share the results of an investigation; however, there is no teacher guidance for students to provide proof or evidence for the findings in their investigations in this discourse. There were examples where teachers were provided questioning strategies and coaching materials to facilitate discourse about student learning; however, limited evidence was found to support student arguments using scientific evidence.

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 some opportunities for students to justify explaining phenomena and solutions to problems using verbal arguments to problems using evidence acquired from learning experiences. In the STEAM Activity Learn by Doing Book, Chapter 3, Activity 1, students test the effect of light on color perception. The text states, "Ask students to communicate what they learned from this experiment. Ask them to write one to two sentences in their notebooks."
- Materials provide criteria for some developmentally appropriate arguments to explain a phenomenon or defend a solution to problems using evidence acquired from learning experiences. In the Teacher Textbook, Earth and Space Project Based Lesson, students investigate erosion with wind and water. The text states, "Some topics in science promote scientific debate," and "It is important to understand that a scientific debate is not an argument. Scientists use data to support their arguments and create models to make predictions." It also says, "Encourage students to think about the types of scientific debate today's topic may invoke. What are the different viewpoints that people may have on this topic? Place students into pairs, and ask them to engage respectfully in scientific debate. Provide students with the data and information they need to support their argument."
- Materials provide unclear guidance on supporting students in justifying their arguments. In the STEAM Activity Guide, there are references to the Phenomena Classroom Chart. It asks the teacher if the students have any phenomena to add to the classroom board, stating, "Discuss and agree amendments to the board." This does not give students sufficient opportunities to

construct and present developmentally appropriate arguments. The Teacher Textbook's mention of the Phenomena is limited, and the materials do not provide opportunities for students to construct and present developmentally appropriate arguments to phenomena. The PBL section says to discuss with the students how this pattern can be used to explain Scientific Phenomena. That is all that is said—no instructions for how to construct.

- Materials do not provide clear teacher guidance on supporting students to construct and present developmentally appropriate justified arguments. In the Steam Activity Guide, students talk about recycling with discussion points. However, these are not verbal arguments or justifications for phenomena. Students share experiences based on questions such as, "Do you know what recycling is?" In the Teacher Textbook, Project Based Lesson, students discuss each experiment's results and compare and contrast results.

TPS Steam into Science Grade 2

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

Partial Meets | Score 2/4

The materials partially meet the criteria for this indicator. Materials include some guidance to support student reasoning and communication skills.

Materials provide some teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. Materials include some teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context. Materials provide some teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims. Materials partially 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 materials provide some teacher responses to possible students' responses. The materials divide teacher guidance into correct student responses, incorrect student responses, and partially correct student responses. The Teacher Program Guide recommends that students responding correctly be provided with "Level 2 assessment questions" from the "Online Library - Assessment tools" for the TEKS being taught and affirm comprehension. The guide recommends that students responding incorrectly be provided with "Level 1 assessment questions." The materials state, "A student responds incorrectly - use the Online Library - Assessment tools; choose Level 1 assessment questions for the TEKS being taught…. Determine if there is a misconception and resolve." Materials do not include specific guidance on the use of questioning to deepen student thinking.
- Materials state teachers should respond the same to partially incorrect responses but expect a shorter time frame to resolve misconceptions. Additional suggestions to respond to struggling learners include studying keywords and using them correctly in a sentence, using "an arts project from the STEAM Activity reader book for relevant TEKS," and going back to "an earlier grade to ensure prior grade learning is completed."

- The Teacher Textbook provides teachers with some possible student responses to questions and tasks. For example, when asked, based on the three previous experiments, what plants need to grow, it lists, "Possible student response should include - nutrients from the soil, sunlight, and water." In an assessment section, one question asks how a man in a kitchen could make a sound. The materials state, "Answers may vary, including Banging pots and pans together with a metal utensil."
- Materials provide some teacher guidance on questioning to deepen student thinking. In the Teacher Textbook, "Science is a Verb" section, materials include the question, “Does everything change in the same way when you heat them?” Materials provide the suggested answer, “No, because the way that each looks after they are heated is different. The ice melted and turned clear. The crayons turned silky and glossy.” Materials do not include specific guidance for building on student thinking based on student answers.
- In the Learn By Doing STEAM Activity Reader, Book questions are provided for the teacher to ask the students. In chapter three, Idea Box 2 states, "Ask the students...Can they describe something they like about camping to share with the class?" In Idea Box 4, the teacher asks, "What would they be doing at 11 pm versus 11 am?" Materials do not include specific guidance for building on student thinking based on student answers.

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

- Materials include some teacher guidance on how to scaffold understanding of scientific vocabulary. The Teacher Textbook guides how to scaffold and support students' development and use vocabulary in the support sections of the Investigations. These sections guide Teachers on using the vocabulary and when to use it. It guides them to encourage students to use the glossary and the word walls to understand.
- The Learn By Doing STEAM Activity Reader Teacher Edition provides general guidance for teachers. For example, in Chapter 8, materials include vocabulary words such as *carbon dioxide*, *nectar*, *photosynthesis*, and *pollination* within the chapter story text. Materials provide a review in the vocabulary section in the last activity of the chapter. Materials do not include any specific guidance on how to introduce and scaffold students’ development of scientific vocabulary terms in context.
- At the end of each topic, teacher guidance states, “ Review the following words with the students using TPS vocabulary cards. The objective of this activity is not to be able to sound, spell, and read all the words, as many are complex, but instead for the students to understand their meaning(s) and recognize them when spoken. Refer to the Reading Guidance and Vocabulary sections in the Introduction for other information on the decoding of the words and methods in using the words to demonstrate spelling knowledge, phonetics, and print awareness.” Materials do not include guidance on any other vocabulary development activities other than using the vocabulary cards and discussion for understanding.
- The teacher's textbook provides general guidance for teachers on how to support students' use of scientific vocabulary in context. For example, in the Matter and Properties chapter, a Support Section states, "Students should attempt to describe what they are talking about if their vocabulary is lacking. Help students build on their vocabulary."
- Students review and apply the vocabulary words in the Learn by Doing Steam Activity Guide within a variety of fill-in-the-blank and comprehension activities. Materials provide some teacher guidance in the STEAM activity guide to support students' use of scientific vocabulary in context. In the STEAM Activity Guide materials guide the teacher to add words to the vocabulary

list in the chapter. Students will die-cut words and definitions and add them to their word organizers. Students are to add a picture to help them recall the meaning of the word.

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

- Materials provide some teacher guidance on preparing for student discourse. In the Teacher Reasoning Guide, Investigation and Reasoning, materials state that students will learn to think like a scientist and how to ask questions and find the answers. In the Planning Investigations, the guidance states that students should be able to communicate their results to the class and actively listen to other students during sharing and participation. Materials do not provide specific guidance related to student discourse within activities.
- The LBD Teacher guide states, "Remind them to listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion."
- Materials guide teachers in supporting students in using evidence to construct written claims. In the front matter of the Learn By Doing STEAM Activity Reader Teacher Edition, materials include general guidance on preparing for student discourse and supporting students in using evidence to construct claims. It states that students should write about their experiments and they should include "The analysis of their results. Plan to discuss The results as a class and focus on key areas such as What their results indicate or mean and differences between different student experiments. What conclusions can be drawn."
- The teacher textbook includes experiments focused on the content that sometimes guides teachers to have students use evidence to support their claims. For example, in a Force, Motion, and Energy lesson, students collect data and evidence about how much force is needed to make something move. After collecting evidence, the Teacher's Guide directs teachers to discuss how to use collected data to write a scientific conclusion.
- In the Introduction of the STEAM Learn by Doing Reader Teacher Edition, the materials guide teachers to remind students to identify important evidence and engage in respectful scientific discussions in the description of the final step of the design process. Materials do not include any further statements to guide discourse. The STEAM Activity Guide provides teacher prompts for discussion within lessons but does not provide support for guiding discourse between students. For example, In Amelia Rose Explores Matter and its Properties, in the Let's Talk About It section, materials state, "Have students talk about what Amelia Rose and her mommy would write for each chapter from the story. " The statements in this section do not clearly state how they should be used by teachers. It appears as just a list of statements.

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

- Materials provide some general guidance for teachers in facilitating the sharing of students' thinking. In the Learn by Doing STEAM Reader, the materials guide the teacher to encourage the students to share what they learned with the class and engage in scientific discussion.
- In the Learn by Doing Steam Activity Reader, chapter 2, teachers work with students to develop a composition that delivers answers to their questions. Materials direct teachers to "Use the Creating and Editing Drafts section in the Introduction for guidance. Students listen actively to others' explanations, identify important evidence, and engage in scientific conversation." Materials do not include any specific guidance on facilitating the sharing of students' thinking and finding solutions.

- Materials provide some support and guidance for teachers in facilitating the sharing of students' finding solutions. In the Learn By Doing STEAM Activity Reader Teacher Edition Chapter 4, Activity 8, students explore physical changes in objects. The Analysis and Discussion of The Results section states, "Ask the students to describe The changes that they made to the materials, and then ask if the material retained its identity." The Conclusion section states, "Ask students to write a sentence describing whether their hypothesis was correct." In Chapter 5, Idea Box 5, materials direct teachers to have students discuss the importance of testing and improving on their first solution design. Teachers ask students how would they feel driving in a car that had only been tested once?" While the materials provide an opportunity for students to share their findings, they do not provide teacher support to facilitate discussions that include feedback tips and examples. The activity plan does not provide any guidelines for teachers to measure success criteria during discussions.
- In the Learn by Doing Steam Activity Reader, Chapter 5, Activity 4, the teacher is to refer to the Creating and Editing drafts section to guide students on delivering their evidence. The Creating and Editing Drafts section, suggests that students help plan drafts by drawing ideas or creating a mind map. Drafts should be revised and edited. The materials lack teacher support on how to guide students in creating their evidence through writing. Materials do not provide examples of written evidence.

TPS Steam into Science Grade 2

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

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. Materials assess all student expectations and indicate which student expectations are assessed. 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.

- The materials provide a student and teacher edition of the Assessment Guide. This booklet contains both traditional assessments and project assessments for TEKS covering the following concepts: scientific and engineering practices; force, motion, and energy; Earth and space; organisms and environments. For example, within the study of organisms and environments, the assessment guide contains more than 12 formative and summative assessments that include traditional test questions and project-style application tasks.
- Materials provide diagnostic assessments. The Teacher Program Guide contains a section called Support Notes for Teachers. Within the Support Notes for Teachers segment in the TPG, there are frequently asked questions with answers. Materials describe the Diagnostic assessments, "The interactive software tool provides automated grading for multiple choice questions; Benchmark tests (Level 1, 2 and 3 Assessments) in Online Library - Blackline Master."
- Materials provide formative assessments. The formative assessments include "Level 1 questions in the interactive software tool or assessment generator; STEM project Explore 1 and 2; Let's Talk About It, Let's Draw It, Stop, Look, Think! - Amelia Rose arts projects."
- Materials provide summative assessments. The Summative assessments are "Level 2 and 3 questions in the interactive software tool and assessment generator; Test yourself, Focus

questions, Multiple choice, Open-ended, Science makers, Performance tasks with rubric; STEMproject Explore 3.

- Materials include a range of embedded assessment teacher resources. In the Program Overview, the publisher states that the program design offers multiple opportunities to master the content required in the TEKS. The materials say teachers use level 1 or 2 from the assessment resources provided and add the results to the matrix. The Teacher Textbook Introduction Preschool and Elementary Level section states, "Assessments included for all TEKS from TEKS 1. Questions are leveled and provide formative and summative questions." I cannot find where there is guidance or opportunities to assess student learning. In the Teacher Textbook front matter, a Summary Steps section breaks down four steps. Within each step is applicable assessment information. For example, in Step 1 - the Learn By Doing Activity Reader Books, the materials state, "Use the Online Library - Assessment Generator - before completing the related activities following each story, have the students verbally respond to Level 1 questions; discuss as a class. It provides teachers with information about what students know. TEKS, including TEKS 1, house the questions." Then, the materials state, "Complete the activities. Use the Level 2 questions for the science content taught and record results by students using the assessment matrix. This will let teachers know if students have mastered the content." The Assessment Guide Grade 2, Chapter Matter and its properties, includes multiple choice questions, open-ended questions, and task performance with a rubric. For example, in the performance task, students are to design an experiment to test various objects for whether they absorb or repel water.
- Materials include summative and formative assessments. Each chapter in the Student Textbook includes a Focus Questions section and a Test Yourself section. In the Earth and Space: Shape of the Land unit, the Focus Questions ask, “What could you do to reduce the impact of wind in your garden? What is a windbreak? What are levees or dikes usually made from?” The Test Yourself section has four multiple-choice questions asking, “What is an embankment along the shore of a body of water? What can be used to stop the wind? What is a good material for a levee? What do they use at construction sites to keep soil from moving?”
- The Teacher Program Guide has a section on Progress Monitoring that discusses Benchmark tests. Within this section, the materials discuss the four Benchmark tests included in the program. Use the Benchmark 1 test to assess natural knowledge at the term's commencement before any program content begins. Benchmark 2 test is TEKS-based and set by teachers for TEKS taught before the examination date. Benchmark 3 test is the end-of-term test covering TEKS taught by a date given. Benchmark 4 is the end-of-year test to review skills by students by TEKS for all TEKS. For each test, the teacher grades and inserts the results onto the assessment matrix and then transfers them to the report card. The materials note, "The results to record are those from the benchmark tests, and all focus questions and performance tasks with rubrics."

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

- Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment. The Assessment Guide - Grade 2 Teacher Edition, Chapter Solving problems, the students will answer Focus Questions. For example, "What is a prediction?". The materials state the answer should be "A statement about what might happen." The Assessment Generator is categorized by grade level, question type, learner level, and TEKS, enabling the teacher to evaluate all student expectations. The online Assessment Generator can create assessments for any grade-level standard. The Benchmark

Test tool available to teachers assesses all student expectations and indicates the expectations assessed at the top of each page.

- The materials include TEKS-aligned assessments that align the curriculum standards and student expectations to measure student understanding and mastery of the concepts and skills taught in the materials. The TEKS addressed and taught in that section or chapter are at the top of the page. It allows for quick reference and guidance for the teachers and students. For example, the Using Tools section has a step-by-step lesson plan and the TEKS that are the focus of the investigation at the top of each page in the book.
- Materials indicate which TEKS are assessed across the breadth of the course. In the Teacher Program Guide, the materials within the Progress Monitoring information describe the Focus Questions, Performance Tasks with Rubrics, TEKS by Chapter assessment questions, and Assessment Generator. Under Performance Tasks with Rubrics, the materials state, "For each TEKS, a performance task with a rubric is provided. Grade students and enter results onto the report card." The By TEKS, Chapter assessment questions at the end of each chapter, and the materials note, "The major assessment tools are those in the Online Library - Assessment tools." Under Assessment Generator, the materials say, "Teachers can create, save and print assessments to include chosen TEKS and skill levels. The tests can be personalized by the student or by class. Manual grading is required."

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

- Materials include assessments integrating scientific concepts and science and engineering practices with recurring themes and concepts. In the Learn by Doing Steam Activity Reader, Chapter 4, Activity 8, Changes in Physical Properties, students will conduct an experiment to demonstrate changes in the physical properties of materials. Students will draw how they will change the physical properties of materials using the equipment provided. Next, students discuss their changes and write sentences about whether their hypothesis was correct.
- In Chapter 8, students act like scientists to experiment on growing plants to determine their needs. The assessment item for the same standard shows clipart pictures of a growing plant, strawberries, and an apple. Students are to label the plants' roots, stems, leaves, flowers, fruits, and seeds and explain how they help the plants meet their basic needs. Materials also include a Learn By Doing Assessment Rubric. The resource lists the standard, where it is taught, a specific assessment question, a general assessment question, and a rubric to score students' answers. For 5. B, the specific question is, "After completing Chapter 3 Activity 10, ask the students to create a cause and effect for erosion observed on the table." The general question is, "Students can investigate and predict cause and effect relationships."
- In Chapter 6, Activity 3, students will compare freshwater to saltwater and use the Scientific Method outlined in the Introduction. Students observe objects, hypothesize if they will sink or float, and explain why. Students will test the objects in freshwater and saltwater and discuss their findings.
- In the Teacher Textbook, the materials include assessments that integrate scientific concepts and science and engineering practices in the Combining Materials investigation. The students construct a strong bridge using at least two materials, using any materials they wish.
- The assessments in these materials integrate scientific and engineering concepts and practices within the themes of the TEKS. For example, the assessments integrate, include, and assess scientific and engineering practices within the first TEKS band. The front matter of the teacher edition of the Assessment Guide organizes this content for all grade levels under the headings:

Questions and Answers (2.1.E, F, G), Solving Problems (2.1.G), Working Safely and Responsibility (2.1.A, B, C), and Using Tools (2.1.D). Under each heading, some segments include the program objective and scaffolding Information for each grade level. For example, under the heading Solving Problems in the Grade 2 materials, the objective reads, "Students will be able to identify and explain a problem in his/her own words and propose a task and solution for the problem, make predictions based on observable patterns, and identify what a scientist is and explore what different scientists do." In Matter and its Properties: Grouping Soils, students experiment to observe the draining properties of three soils.

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

- Material includes assessments that require students to apply knowledge and skills to novel contexts. In the Assessment Guide, Force, Motion, and Energy, Performance Task, students use equipment provided in class to show the effects of two different strengths or directions of pushes or pulls to make a standing object start moving or move differently after students have completed activities on magnets in the Learn by Doing Steam Activity Reader. Students also create a ramp to observe how items move down and how students can change the motion. In the Assessment Guide, students roll toy cars down ramps to compare the speeds of cars.
- The materials include assessments that require students to apply knowledge and skills to novel contexts. Specifically, the assessments within the program's Assessment Guides are activities separate from the lessons in the other program materials. This structure allows for assessment within the topic of study but in a new context. For example, in Grade 2, students investigate and describe how wind and water move soil and rock particles across the Earth's surface while studying Earth and Space. The students participate in a lesson on the science related to the Shape of Land, answer focus questions, conduct two investigations, and complete a Test Yourself quiz. The Assessment Guide provides summative open-ended questions, including, "Why are large numbers of trees often planted on slopes of hills or by rivers and lakes?" It also provides five tasks for students to apply what they have learned, including multiple-choice questions and additional open questions to assess knowledge.

TPS Steam into Science Grade 2

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.	PM
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.	PM
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 material partially meets the criteria for this indicator. Materials include some guidance that explains how to analyze and respond to data from assessment tools.

Materials include some information and/or resources that provide guidance for evaluating student responses. Materials somewhat 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 some relevant information for teachers to use when planning instruction, intervention, and extension. Materials provide some resources and teacher guidance on leveraging different activities to respond to student data.

Evidence includes but is not limited to:

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

- The teachers' editions inconsistently provide assistance for evaluating responses. The Learn by Doing STEAM Reader Book contains examples for student responses to general questions that are to be investigated during a culminating activity for the content TEKS, located under the Assessment section of the guide's table of contents, but each chapter in this Reader has multiple activities, sometimes as many as 8 per chapter, and there is no guidance for evaluating students' responses or performance in those activities. This contrasts with the Teacher Textbook, which offers guidance in red text for every student activity/question. This inconsistency in the different components of the curriculum materials limits the guidance available for teachers in evaluating content-based student responses.
- Materials provide some teacher guidance for evaluating student responses. In the Learn by Doing Assessment Rubric - Grade 2, the guide gives an assessment question followed by responses that determine mastery. For example, "After running Chapter 1 Activity 3, ask the students to explain why some objects moved faster vs. others moving slower down the ramp.". Materials provide a rubric for some proficiency, approaching mastery, and mastering. The Learn by Doing Assessment Rubric helps teachers analyze assessment data by measuring students' progress and level of mastery. There is also some guidance in the assessment generator and benchmark tests. However, the guidance occurs inconsistently throughout the materials.

- Materials include some information that guides evaluating student responses. In the Assessment Guide, students draw a house that uses solar energy. The assessment includes a Scoring Rubric that describes the quality of answers that would score 0-3. A three-point score requires “A workable design is produced, based on accurate scientific principles, i.e., large windows positioned to take full advantage of the Sun throughout the day. Reference is made to the time, constraints of materials involved in the design, and the environmental benefits of solar energy." However, materials lack an explanation of what constitutes a “workable design” and what scientific principles this rubric focuses on. This interpretation is left up to the teachers to determine rather than receiving direct guidance from the materials as to how to evaluate student responses.
- Materials include some information that guides teachers in evaluating student responses. In the Learn by Doing Assessment Rubric Grade 2, teachers are provided a multi-page table guidance tool for evaluating student responses aligned with the TEKS. This table shows each TEKS, where it is taught, and an assessment option, and then provides three levels of student responses that would show some proficiency, approaching mastery, and mastery. For example, TEKS 6 in the STEAM Storybook can be found in Chapter 4. The assessment states after reading the Chapter, ask the students to describe the physical properties of different objects verbally. Guidance on evaluating responses states students with some proficiency will be able to describe most of the physical attributes with significant teacher prompting, students approaching mastery can describe most physical properties with some prompting, and students with mastery can describe most of the physical properties with no prompting. The materials do not state how many attributes a student would need to provide, nor which attributes would be most appropriate for the task.

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.

- Materials include some support for the teacher’s analysis of assessment data within the teacher materials by providing interactive assessment tools that provide student summary reports and an assessment matrix document tool that teachers can use to record student data and then analyze. The materials offer some guidance and direction to respond to individual student needs with a visual flow chart of assessment resources and paths of response to needs based on data within the Teacher Planning Guide.
- Materials lack specific guidance documents and resources to support teachers' analysis of assessment data. In the Teacher Program Guide, Program Introduction, overview information details that teachers assess student learning using Level 1 and Level 2 questions from the online library assessment generator. The general guidance states that if students answer either or both questions correctly, mastery is “likely.” If students need more opportunities, the teacher's guidance offers STEM and Art content, which will help deepen students' learning. The information gathered from the assessment tools lacks specifically detailed guidance to support teacher analysis of data when planning core and differentiated instruction. The materials do not offer specifically embedded guidance or feedback in the Assessment Tool Generator, Assessment Guide, or Assessment Rubric.
- Materials provide some guidance documents and resources to support the teacher's interpretation of the data. The materials include an assessment generator that can be used to create a custom assessment of the material; it does not suggest ways to make instructional decisions based on the assessments. Teacher Textbook refers to using the Assessment

Generator in creating assessments and then collecting student data utilizing an assessment matrix but then does not guide how to interpret that data to plan instruction.

- Materials provide some guidance and tools to support teachers in responding to data to inform instruction. In the front matter of the Teacher, Textbook materials include an overview flow chart that visually delineates the assessment-instruction process to respond to student needs based on assessment data. The flow chart shows the general steps that teachers can take to address student needs in an overview format. However, these steps are not supported by guidance throughout the materials. Although the materials contain “Intervention Focus Tutorial” materials to assist students who are not meeting expectations, these supports are not directly aligned with assessment data. For example, for Matter and Its Properties, there is a lower-level version of the material in the Student Textbook. However, this material is not directly correlated to assessment data. No materials provide direct guidance on how this tool can respond to assessment data collected.
- Materials provide an alternative scope and sequence, which only suggests slowing the material down and breaking it into smaller lessons. According to the document, How to Use the Program, “If you are a teacher in a specialist school, with students performing at far below grade, you might choose to use this tool and adhere to the Learn By Making Activity Reader Scope and Sequence RTI approach.”.
- Materials include some assessment tools that yield data teachers can analyze and interpret. Within the Teacher Textbook, the "Textbook Work" sections guide the teacher through the assessment steps within each investigation. However, these sections do not support analyzing or evaluating the data collected from students' responses. For example, the second part says, "Students should complete the What Have You Learned? exercise. Have students hand in this work for evaluation. “The Assessment Guide offers a range of tools for evaluation and questioning, including multiple-choice and open-ended questions and performance tasks. However, it lacks support materials or resources to help teachers easily analyze and interpret the data they collect.

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

- Materials provide various assessment tools and resources, including embedded questioning in student materials, an assessment guide, and an online assessment generator that could be used to support teachers when planning instruction, intervention, and extensions.
- The information gathered from the assessment tools helps teachers when planning core science instruction. Although the materials provide formative and summative assessments in the Student Textbook, like in the Learn by Doing STEAM Reader, the Assessment section at the back contains questions related to each core concept. However, they do not suggest ways to make instructional decisions based on the assessments. The materials also include an assessment generator that can be used to create a custom assessment of the material and an Assessment Guide, which offers a range of tools for evaluation and questioning, including multiple-choice and open-ended questions and performance tasks. However, it lacks support materials or resources to help teachers analyze and interpret the data to support planning instruction, intervention, and extension activities from the data they collect.
- The information gathered from the assessment tools helps teachers plan differentiated instruction. The information gathered from the assessment tools lacks guidance when planning core and differentiated instruction. In the Teacher Program Guide K-8, the information provided states, "Level 1 learners will require more time and content from STEM and art projects in

conjunction with story books.". Level 2 students must follow the original scope and sequence and work on additional projects at home. Level 3 students continue the scope and sequence and can complete the advanced learner content and advanced STEM projects. Benchmark tests determine levels. This limited guidance does not support effective instructional planning targeted to students' needs. Another example in the Teacher Textbook front matter materials provides an Assessment Database section. This section briefly describes the assessment resources but does not explicitly state how to utilize the resources to guide instructional planning.

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

- Materials provide a variety of resources on how to leverage different activities to respond to student data. Materials include a Teacher Program Guide, Teacher Textbook, and Teacher versions of student books that describe activities and include some overviews and teacher guidance on how all the student materials and activities can be leveraged to respond to student data. Materials also include various student materials that can be used to collect data for teachers to respond to students' instructional needs.
- Materials provide a variety of student resources for teachers to use in responding to performance data. However, they lack teacher guidance on how to leverage activities and respond to the student data. Examples of resources include the Learn By Doing STEAM Activity Reader, the Student Textbook, the Student Journal, the STEAM Activity Guide, the Student Assessment Guide, and the Intervention Focus Tutorial. However, these resources do not guide teachers in effectively using performance data to respond to students' needs. An Assessment Generator is a tool for gathering student data. Teachers use the generator to create assessments based on grade level, TEKS, and learning level. They can choose between multiple-choice or open-ended questions and preview them before finalizing. However, there is no guidance on how teachers respond to the data from these assessments to support students' learning.
- Materials provide a variety of teacher information but provide only some guidance for teachers to leverage different activities to respond to student data. For example, The materials provide various student resources to respond to performance data for Level 2 or Level 3 students. In the Learn by Doing Steam Activity Reader, Chapter 6, students have five activities they can complete. In Activity 4, the students will create a composition about a snow day. Activity 5 Students review vocabulary words. However, materials lack guidance on how to leverage activities for students below level.

TPS Steam into Science Grade 2

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

Partial Meets | Score 1/2

Materials partially meet the criteria for this indicator. Assessments are somewhat clear and easy to understand.

Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. Assessment tools do not use clear pictures and graphics that are developmentally appropriate. Materials provide some guidance to ensure consistent and accurate administration of assessment tools. Materials include some guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned with learning goals.

Evidence includes but is not limited to:

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

- Assessments contain items for the grade level or course that avoid bias. Formative and summative assessments include items that present content and examples fairly and impartially with no impact on student performance based on such factors as a student's home language, place of origin, gender, or race and ethnicity. Some assessment items are highly relatable to all students, such as an item in the Force, motion, and energy assessment questions that direct students to "Think about some of the toys and games in school or at home that you like playing with. Name two activities that involve pushing and two which involve pulling."
- Assessments contain some items for the grade level or course that are not free from errors. The Assessment Database for Matter and its Properties 6C question 242 states, "What can individual bricks be put together to make?" The "individual" is spelled wrong. In the Assessment Generator, Database ID 58, Question 20, there is a picture of a frog, and the students are to describe the animal. The answer key states that the answer is, "Count all the pink flowers."

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

- Assessment tools often use unclear graphics. The items in the Assessment Database use simplistic clipart to support questions. For example, when asking, "Look at the images. What 2 categories would you separate these into, and how many are in each category?" materials include unlabeled clipart images of seven small brown animals with legs and twelve brown fish-shaped items. In the Assessment Generator, Database ID 412, Question 138, materials ask

students to look at a picture and decide what part of the animal helps it find its food in the dark. The answer, "big eyes," is unclear due to the intricate image.

- In the Assessment Generator, Database ID 412, Question 138, materials ask students to look at a picture and decide what part of the animal helps it find its food in the dark. The answer, "big eyes," is unclear due to the picture. Students are unable to make out the bird's eyes.
- The Assessment Database and Assessment Generator provide resources for teachers to create assessments. However, assessments must be printed in color for students to interpret the graphics successfully. For example, when asking, "Look at the images. What colors can you see in this image?" there are clipart images of a brown and tan butterfly. However, if the assessment were not printed in color, the distinction between the butterflies would not show.
- Computer-generated graphics can only be found in some of the Assessment Generator choices when creating assessments and in some informal assessments within the learning materials. Materials do not include photographs in these assessments.

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

- Materials provide some guidance to ensure consistent and accurate administration of assessment tools. The “How to Use the Assessment Generator Tool” video walks teachers through creating an assessment with this online tool. It also provides some ways that teachers could use a created assessment with students that include printing or displaying for the group or class to complete. Materials do not include information about how to administer assessments. Materials include reminders or tips that give suggestions for the time allotted to complete some of the assessments. Not all assessments include time allotment suggestions.
- The Teacher Program Guide, Progress Monitoring, includes information about when to assess students. The product has four benchmark tests and guidance for when to give each benchmark. For example, "Benchmark 1 test - to assess natural knowledge at the commencement of term before any program content being taught". Materials guide the teacher on when to administer benchmarks 2-4 throughout the year. Focus questions are also in the student textbook. "Teachers are asked to assign a homework period and have students create a written response to each focus question."
- Materials offer assessment administration guidance inconsistently. Items in the database offer directions for multiple audiences without implementation support. For example, item #1 states, “What is a question you might ask about a frog’s life cycle?” while #48 says explicitly, “Work alone. What might you need to get a wheelchair off a bus?” Another item, #45, tells students to work in pairs. The materials do not provide consistent guidance for students or teachers. The Assessment Database does not include directions or similar guidance in any part of its online assessment platform. The entry screen provides options for teachers to select TEKS-aligned questions, choose the level of questions and show the answers.
- Materials include some information that supports the teacher’s understanding of assessment tools and their scoring procedures. For example, the Program Guide states, “Teachers are provided with a teacher assessment matrix where they insert grades for relevant assessments, by TEKS by the student.” The assessment matrix includes TEKS 6 - 13 but does not break each one down into all of each standard’s parts, such as 6A, 6B, 6C, and 6D. Information includes a description of the TEKS, and a table to input student names and scores. There is no place in the matrix to input names of specific assessments or information on scoring procedures for different assessment types, such as performance tasks and Benchmark tests. Materials do not include information on how teachers are to use the matrix once data is recorded.

- The Teacher Textbook provides a summary of the Assessment Database. The guidance states, “The Creative Science Curriculum encourages two types of assessment; visual lesson plan activities and quizzes/tests.” Materials state teachers can conduct visual assessments by “watching students perform activities, such as found in STEM Project Editions or Arts Projects.” Materials do not provide any checklists of criteria for scoring or recording visual assessments.

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

- Materials offer some accommodations for assessments so that students of all abilities can demonstrate mastery of learning goals. The Assessment Generator allows the teacher to select items above or below grade level that align with the standard. For example, For example, an on-level question asks, “How is sound made ?” The below-grade level question is the same but adds multiple-choice stems and the prompt, “Remember that everything is made of particles/matter.” While materials offer a differentiated assessment option, materials do not include student assessment tools such as speech-to-text for answering written response items, visual clues such as color-coding text within test items, or text-to-speech features that enable students to hear text read aloud.
- Some assessment resources in the materials do not offer accommodations so that students of all abilities can demonstrate mastery of learning goals. The back of the Learn by Doing STEAM Activity Reader contains an assessment section for readers. According to The Teacher Program Guide, those purchasing the print-only format can use the questions included in each *Learn by Doing STEAM Activity Reader Book* for assessment. However, the assessment tool doesn't provide any guidance on how to offer accommodations for students to demonstrate mastery of knowledge and skills.
- Materials offer some accommodations for assessments, such as tips for the presentation of questions to aid understanding so that students of all abilities can demonstrate mastery of learning goals in their level of question choices. However, materials do not include teacher guidance on other presentation accommodations like visual cues, color coding, text-to-speech, or speech-to-text within assessments. Materials do not include guidance for accommodations such as assessment timing, scheduling, or change of setting for assessments to support all students.

TPS Steam into Science Grade 2

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.	PM
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.	PM

Partial Meets | Score 1/2

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

Materials provide some recommended instruction and activities to scaffold learning for students needing mastery. Materials offer enrichment activities for all levels of learners. Materials partially 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.

- Materials include some support for students who may not achieve mastery, but teacher guidance often needs to be clarified. For example, the Teacher Textbook has a section on support in the project-based lesson on organisms and the environment. The guidance is that if the student does not know some animal facts, then have them paired with a more advanced student. The materials include a Support Matrix Document that lists resources that align with each standard. However, the resources listed are not additional and not intentionally designed for intervention. The materials need to differentiate activities and targeted instruction for students who have yet to achieve mastery. In the Teacher Program Guide, there is a reference to an Intervention Focus Tutorial. The tool covers various content in each grade. This guide states that teachers can use it with students who struggle with traditional textbook learning. However, the Intervention Focus Tutorial needs to provide teacher guidance. For example, within the Intervention Focus Tutorial, under TEKS 11, the students were asked to bring something from home and tell the teacher if nature or man made it. The materials include a Support Matrix Document that lists resources that align with each standard. However, the resources listed are not additional and not intentionally designed for intervention.
- Materials include some teacher guidance for scaffolding instruction and differentiating activities for students who still need to achieve mastery. The materials include a Support Matrix Document that lists resources that align with each standard. However, the resources listed are not additional and not intentionally designed for intervention. According to the Teacher Program Guide, “Online libraries offer additional STEM and Arts projects; some are for advanced learners, some are specifically for special education students, but they are all-inclusive, and students with vastly different skill sets will enjoy completing the projects. Teachers can use

more or less of the leveled materials to suit the individual student's progression. For example, if students are working below or far below grade level due to reading, teachers can use the intervention focus tutorial and choose the grade and appropriate TEKS content that should have been mastered in an earlier grade but was not." However, the teacher materials do not direct teachers to what materials they can use to intervene.

- Materials include some teacher guidance for scaffolding instruction under the Support heading in the Teacher Textbook. In the investigation Name That Tool, the Support heading states, "Students may not yet know an extensive range of tools, so limit your vocabulary first to ensure the most commonly used tools are mastered. If students are not able to draw recognizable representations of tools. Let them tell you the information they know using glossary cards or pointing to the word wall. Encourage students to use their prior knowledge and experiences to understand meanings in English. Encourage students to read aloud, if able, or to describe the pictures from the book. Teachers should monitor oral language production and encourage students to use self-corrective techniques or other techniques and resources to aid their thinking." In the Teacher Textbook, each investigation has separate sections: "Support" for struggling students, "ELL" for language learners, "Extension" for learners that are ready to extend or go beyond the lesson, or "At Home" to continue the learning if desired. For example, the "Name the Scientist" unit includes all these sections.
- Materials guide teachers in supporting students who still need to meet mastery. The Learn by Doing Scope & Sequence RTI materials provide recommended targeted instruction and activities for each lesson from the STEAM Storybooks. While it is labeled Alternative Scope and Sequence for RTI students, there is no evidence of an alternative scope and sequence for students who still need to achieve mastery. In the Teacher Textbook, there is a section that is labeled Scaffolding. The Scaffolding section lists previous and future TEKS. The materials include a Support Matrix Document that lists resources that align with each standard. However, the resources listed are not additional and not intentionally designed for intervention.

Materials provide enrichment activities for all levels of learners.

- Materials provide Teacher guidance that encourages exploration and application of grade-level science knowledge and skills for all learners by applying new learning via STEAM activities in the STEAM Activity Guide. In the Happy Flowers project, students explore the effects of sunlight and water on a plant. Students plan and conduct their investigation versus a control. They also explore how animals and insects transport pollen and model their seeds. Students also apply their knowledge by inventing their plant and placing it in its perfect environment.
- Materials provide Teacher guidance that encourages all learners' exploration and application of grade-level science knowledge and skills by applying new learning via various activities in the Learn By Doing STEAM Activity Reader. In Chapter 3: Lost in the Forest, students first read about weather, sound, and light. Eleven different activities aligned to the content follow the reading, such as an experiment to test the effect of light on color perception, a math measurement activity, a rock observation and sort activity, and an engineering activity to design and build a device that uses sound to communicate.
- Materials provide enrichment activities for all levels of learners that account for learner variability. In the Learn by Doing Steam Activity Guide Grade 2, teachers ask students to help create mind maps and write throughout the lessons. For example, in Matter and its Properties, materials suggest that students should write a description of the material and create a mind map of different things they want to include in their description. Materials offer partner

discussions. For example, in the Learn by Doing Teacher Steam Activity Reader, the teacher and class will discuss the results of the activity.

- Materials provide a variety of enrichment activities for all levels of learners. In the Teacher Textbook, in the Project Based Lessons in the back of the book, there are enrichment activities for all levels of learners. Other extensions, like Math extensions, are embedded into the lessons. The STEAM Activity Guide has RLA and Math Connections at the end of the lessons to show how they are embedded. There is evidence of enrichment in the Activity Guide by integrating mathematical practice. The Teacher Textbook offers several opportunities for hands-on investigations and experiments that extend learning. There is an investigation into force and motion. The Teacher Textbook has opportunities to make science connections to math and literacy at the end of each unit.

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

- Materials provide some scaffolds and guidance for just-in-time learning acceleration for all students. In the Teacher's Textbook Matter and Properties Unit, How Do You Group Objects? The lesson states, "Should you have advanced students, you can further classify objects." It describes mass, weight, magnetism, density, and temperature.
- Materials provide some scaffolds and guidance for some learning acceleration for all students. However, some content for "Advanced Students" does not fall within grade-level or developmental expectations. The STEAM Activity Guide Earth and Space Unit has two activities designed for advanced students. The activity has students explore the daylight hours during different seasons. The at-grade level students are discussing when the sun rises and sets. The modification for advanced students is to determine which direction the sun rises.
- Materials include support and resources for students ready to accelerate their learning; however, materials lack recommendations for just-in-time scaffolds to develop productive perseverance in learning. The Assessment generator has three levels of questioning intended for advanced students. However, there is no evidence of questioning for just-in-time students.

TPS Steam into Science Grade 2

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

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials partially 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 inconsistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide some 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 include a variety of instructional approaches that are developmentally appropriate. As seen in the Learn by Doing STEAM Activity Reader, in the idea boxes - in Chapter 3, Lost in a Forest. Students chart the weather for two weeks to gather and analyze data. There are teacher demonstrations and making connections. The STEAM Activity Guide has various instructional approaches to engage students. The teacher does classroom demonstrations; there are tasks where students use tools to measure and collect data and engage in collaborative learning activities.
- Materials engage students in the mastery of the content through various developmentally appropriate instructional approaches in the Learn by Doing STEAM Activity Reader. Chapter 6 includes teacher think-aloud in the Idea Boxes. Idea box three states, “Work with the students to mindmap conservation ideas they could use to conserve and properly dispose of materials they use in the classroom.” The chapter includes exploration with concrete and hands-on materials at the level of rigor for the course when students experiment with salt water and fresh water in Activity 6. In the STEAM Activity Guide, Rock Hard includes opportunities for students to engage in inquiry-based learning activities in a collaborative setting to create concrete

problem-solving by setting a new flagpole. The lesson consists of authentic tasks in which students use tools to measure and observe throughout the process.

- The materials engage students in the mastery of the content through various developmentally appropriate instructional approaches. In the Learn by Doing Steam Activity Reader, Chapter 7, Activity 9, students will draw a food chain of producers and consumers using reference books for pictures. In the Steam Activity Guide, Organisms and Environment, students will look for birds and explain how part of their body helps them survive. Next, students write about it, draw pictures, or create mind maps.

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

- Materials consistently support flexible grouping. In the Teacher Textbook, the materials consistently support flexible grouping—often in small groups, pairs, and whole classes. In the STEAM Activity Guide, there are many instances where the students are in pairs, small groups, and whole groups.
- Materials support a variety of instructional groupings in the *Learn by Doing STEAM Activity Reader Book*. The teacher reads the stories to the whole group. In Chapter 3, the teacher reads Lost in a Forest and demonstrates Activity 1 to the whole group. Students work in pairs to complete Chapter 3, Activity 10, in which the students investigate erosion using a stream table. Chapter 3, Activity 8 has students work in groups to observe, describe, and compare rocks.
- Materials consistently support flexible grouping. In the Learn by Doing STEAM Activity Reader, Chapter 7, Activity 7, students will discuss the outcome of their results with the class. In the Steam Activity Guide, Organisms and Environments, the students will form small groups and act out the life of a potato plant. They will research the potato plant and highlight its needs.

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

- Materials sometimes provide multiple types of practices, but the guidance and structures need to be consistent for effective implementation. For example, in the lesson plan for Properties in the Teacher Textbook, there is teacher modeling, guided practice, and working in groups and independently. But there needs to be guidance and structure in place.
- Materials inconsistently provide some support for multiple types of practices with unclear teacher guidance for implementation. The Support Notes for Teachers in the Program Guide detail how the program begins with the STEAM Activity Reader that teaches literacy with science. Then, teachers are to use the textbook, including expository text, investigations, assessment materials, and literacy and math-connected challenges. The STEAM Activity Guide provides aligned STEM and Arts activities and an engineering practice project. The Support Notes for Teachers in the Program Guide provides an overview of each program piece, what is in each piece, and the sequence of materials.
- Materials provide inconsistent multiple types of practices. However, the materials do not offer guidance and structures to achieve effective implementation. The Teacher Program Guide, Program Introduction, states that teachers should assess students using Level 1 and Level 2 questions from the Online Library Assessment Generator. "If students accurately answer either or both questions, then once the textbook content that follows has been completed, it is highly likely that the science content has been mastered." In the Learn by Doing Steam Activity Reader, under the topic Scientific Method, the guidance states that students actively listen while sharing

and respectfully participate in class discussions. The Activity Reader is considered guidance but needs to include effective implementation.

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

- Materials represent diversity in communities. The STEAM Activity Guide, the student edition, has a diverse representation through images and information. Throughout the Amelia Rose stories, there are males and females. There were different races, and there was a boy in a wheelchair.
- Materials represent diverse communities using images and information that are respectful and inclusive. The cover of the Learn By Doing STEAM Activity Reader shows an illustration of a diverse group of students. The three cartoon students are of multiple skin colors and genders, and one is in a wheelchair. The cartoon teacher is a female with tan skin and dark hair. The same characters are found in the reader's stories, as well.
- Materials represent diverse communities using images and information that are respectful and inclusive. In the Online Library - Scientists - Blackline Master K-8, there is a chart with named scientists and their ethnicity. For example, the materials list Dr. Helen Rodriguez Trias under the header Latinos. There is a note to use this list to assign research to students. The Online Library of Scientists contains fact sheets for many scientists from diverse backgrounds, including males, females, and multiple nationalities and ethnicities. Scientists include Alexander Graham Bell, Ernest Just, Isaac Newton, Jane Goodall, Katherine Johnson, Mae Jemison, Marie Daley, Mario Molina, Sally Ride, and Ynes Mexia.
- Materials represent diverse communities using images and information that are respectful and inclusive. A diverse group of students that represent multiple ethnicities is on the cover of the Learn by Doing Steam Activity Reader.

TPS Steam into Science Grade 2

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

Partial Meets | Score 1/2

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

Materials include some guidance for linguistic accommodations (communicated, sequenced, and scaffolded) but not commensurate with various English language proficiency levels as defined by the ELPS. Materials do not encourage strategic use of students' first language for 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 provide some linguistic accommodations for emergent bilingual students that do not commensurate with various levels of English language proficiency as defined by the ELPS. The Learn By Doing STEAM Activity Reader includes some directions for teachers on how to guide students through listening, speaking, reading, and writing activities designed to support all students. However, they are not explicitly accommodated for emergent bilingual students or commensurate with various levels of English language proficiency as defined by the ELPS. For example, each chapter provides idea boxes for class discussion of an element or concept from a text to encourage speaking. Chapter 5, Idea Box 3 says, "Ask the students what they think are the most important characteristics of a bridge."
- Materials provide some accommodation guidance for emergent bilingual students. The Teacher Textbook contains some suggestions for students learning English. In the Matter and Properties Investigation, there are four suggestions under ELL, including "Monitor student spoken English as they reply to questions or participate in discussions. Students should attempt self-correction, but you may need to provide extra support. Using comparisons of properties can be an opportunity to reinforce the use of comparisons in language. Work on: big, bigger, biggest, heavy, heavier, heaviest, flexible, less flexible, more flexible, most flexible, least flexible." Another example of teacher guidance found in Support, the Tools investigation: Name that Tool, states, "Encourage students to use their prior knowledge and experiences to understand meanings in English."

- Materials provide some guidance in the teacher's instructions for individual lessons and activities. For example, the Earth and Space Project Based Lesson states, "During reading, ensure students are developing their basic sight vocabulary and can comprehend English vocabulary and language structures routinely found in written classroom materials." However, teacher guidance is inconsistent and not aligned with the various levels of English language proficiency defined by the ELPS.
- The Teacher Program Guide provides limited guidance for teachers to support emergent bilingual students. Teachers are asked to use Archway, a phonics program, and dual language TPS glossary cards. The materials encourage strategic use of students' first language as a means to the linguistic, affective, cognitive, and academic development of English." The Teacher Program Guide also provides a list of the ELPS. However, further linguistic accommodations with detailed teacher guidance are not embedded anywhere else in the materials.
- Materials include some guidance for linguistic accommodations but do not guide various levels of ELPS. The Teacher Textbook section Tools states that the teacher should have students use strategic learning techniques to acquire basic and grade-level vocabulary. "Have students work collaboratively to use techniques such as concept mapping, drawing, sounding it out, recognizing spelling patterns, and recognizing rhyme to aid their reading and learning. Have students use the same strategies to aid their speaking abilities." However, these do not appear consistently and do not include information showing alignment with the 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.

- While materials provide limited opportunities for native Spanish-speaking students to use their first language, materials do not encourage strategic use of the student's first language as a means to linguistic, affective, cognitive, and academic development in English. For example, teacher guidance for the project-based Earth and Space lesson states, "For ELL students, have a second card with the English word on one side and the foreign language word on the reverse." Materials lack further guidance encouraging teachers to strategically use the first language as a means to develop English as the second language. Here it should also be noted that materials refer to students' first language as a "foreign language" rather than a first or native language.
- Materials provide limited opportunities and teacher guidance to use Spanish glossary cards. For example, materials state, "Use the Spanish Glossary cards to assist relevant students." Materials lack further guidance on the strategic use of cognates as a means to linguistic, affective, and academic development in English. However, Spanish glossary cards aren't sufficient to strategically use the student's first language, and there is no support for languages other than Spanish.
- Materials provide some support for linguistic accommodations but do not encourage strategic use of students' first language through such practices as allowing students to listen to texts in a first language before listening in English or providing students the opportunity to write or respond in a first language before English. For example, teacher guidance for the Energy Survey lesson plan states, "Encourage ELL students to ask some of the interview questions. They can listen first to another student and ask questions, then use this as a model for their questions. Encourage students to ask for help or clarification if they need it." Such guidance on supporting emergent bilingual students lacks strategic use of students' first language.

TPS Steam into Science Grade 2

Indicator 7.4

Materials guide 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.	PM

Partial Meets | Score 1/2

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

Materials provide information to be shared with students and caregivers about the program's design. Materials provide information to be shared with caregivers for how they can help reinforce student learning and development. Materials include some 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 information for students and caregivers in the Family Guide. The materials offer a Family/Caregiver Program Guide for grades K-8 that introduces the philosophy, research-based strategies, program components, assessment information, and a glossary for each grade.
- Materials provide information to be shared with students and caregivers about the program's design. According to the Family/Caregiver Guide, Program Introduction, the program has created a family guide that explains the research behind the program content. The Family/Caregiver Program Guide describes the program's philosophy in easy-to-understand language. In the research-based strategies component of the Program Introduction, materials state that the “knowledge of Science is best learned by having students read about the subject or hear about it from a teacher; other knowledge is best learned in laboratory or field studies.”.
- The Teacher Textbook provides an overview of the Family/Caregiver Guide For Teachers/Parents/Caregivers. This resource guides teachers on how they can share information about the curriculum with families and caregivers. It also mentions how teachers can share the TPS glossaries with families. It states, “These are available to parents/caregivers digitally.” It also references other resources that can be shared, for example, “At Home, activities are also provided in each Student Textbook.”
- Materials provide some digital resources that teachers can share with families to reinforce learning and development. According to the Family/Caregiver Guide Grades K-8, in the Program Introduction, "TPS Publishing Inc. provides parent digital access for families to all homework assignments and the lists of keywords and definitions.

TPS Steam into Science Grade 2

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

- Materials provide information for teachers to share with families/caregivers to help reinforce student learning and development. The Family/Caregiver Program Guide provides some resources and strategies for caregivers to reinforce student learning and development. It states, "Parents/caregivers can help enforce some of the requirements of the TEKS at home. The work you can complete with their children will vary between assisting students studying new TEKS content and explaining how it applies to home life and practical assistance with safety measures."
- The materials provide information for parents and caregivers about ways they can reinforce learning and development. For example, the materials include a document titled How Teachers and Caregivers are Supported by STEAM Content and provides introductory information for caregivers as well as concrete ways caregivers can support learning at home.
- The materials provide information for parents and caregivers about ways they can reinforce learning and development. For example, the materials include a document titled How Teachers and Caregivers are Supported by STEAM Content and provides introductory information for caregivers as well as concrete ways caregivers can support learning at home. For example, it provides the strategy of "Ask the students to define specific words and demonstrate them with an action or an example in a sentence."
- Materials provide information for teachers to share with families/caregivers to help reinforce student learning and development. TPS has created an additional guide, "How Teachers and Caregivers are Supported by the STEAM," to be shared with caregivers for how they can help reinforce student learning and development. The Teacher Textbook lessons include an "At Home" section with specific suggestions for home reinforcement. The Matter and Its Properties Lesson states, "At Home: Encourage your child to sort objects in terms of different properties. For example, ask them to separate fruits into groups of different colors or order a number of books by size."
- Materials provide some digital resources that teachers can share with families to reinforce learning and development. According to the Family/Caregiver Guide Grades K-8, in the Program Introduction, "TPS Publishing Inc. provides parent digital access for families to all homework assignments and the lists of keywords and definitions."

Materials include information to guide teacher communications with caregivers.

- The Teacher Program Guide contains information about the resources available to caregivers but does not guide teacher communications with caregivers. The materials tell the teacher what is available and state that TPS provides the caregivers with access online and glossaries in the Family guide. The document also states that materials advise teachers to provide digital access to caregivers and that the Family Guide states how caregivers might communicate with teachers. However, materials lack information to guide teacher communications with caregivers.

TPS Steam into Science Grade 2

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.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for the indicator. Materials include some 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 some review and practice of knowledge and skills but lack spiraling through the year to support mastery and retention.

Evidence includes but is not limited to:

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

- A TEKS-aligned scope and sequence accompany materials. The materials include a scope and sequence in the Teacher Support guide. The scope and sequence have the unit, TEKS, textbook reference page, and the number of class periods and revisions needed for each unit. For example, Core Area Five - Organisms and Environments will occur over thirty-four class periods. The TEKS are listed; the 2-2.13, and the lessons are referenced in the textbook material. Scope and sequence are also found in the front matter of the *Teacher Textbook*, in the “Scope and Sequence” section.
- Vertical alignment for grades K – 5 is included at the beginning of every chapter, along with information on what should have been previously learned in earlier grades. The materials provide teacher clarity in understanding how activities and experiences connect concepts and scientific and engineering practices. In the *Teacher Textbook*, a graphic describes how to determine the student’s initial understanding using multiple assessments.
- In the “Online Teacher Support,” the “Pacing Plan/Year Planner” includes a calendar format document suggesting an outline of the order in which the lessons should be taught. For example, the Pacing Plan/Year Planner for Second Grade shows that Unit 1 – Scientific and Engineering Practice should be taught 21 days from August 20 to September 3.
- Materials include TEKS alignment. In the *Teacher Textbook*, the TEKS are listed for the unit at the beginning of each unit. TEKS are only partially vertically aligned. There are TEKS for third, fourth, and fifth grade but none for Kindergarten and first grade.

TPS Steam into Science Grade 2

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

- Materials provide some teacher guidance for facilitating student-made connections with prior experience and background knowledge across core concepts, scientific and engineering practices, and not on recurring themes and concepts. Materials include TEKS 1 –5 Content Guide, which shows how recurring themes and concepts are spiraled throughout different lessons. For example, TEKS 5B is taught in Lessons 10B, 9A, 9B, 8A, and 8B, according to the added document.
- For example, the Water lesson states, "This standard builds upon work students have covered on this topic in previous grades. Students should already know: Grade: Kindergarten: how to observe and describe the physical properties of natural water sources. Grade 1: how to identify and describe a variety of natural sources of water, including streams, lakes, and oceans, and how to gather evidence of how rocks, soil, and water help to make useful products." The *Teacher Textbook* includes a vertical alignment under the Tools section, taught at the beginning of the year. The Kindergarten TEKS for science and the vertical alignment for the TEKS for grades one through five are included. There is a vertical alignment at the beginning of every chapter in the *Teacher Textbook*.
- Materials provide some guidance for recurring concepts through scaffolding. Scaffolding can be found in the *Teacher Textbook* at the beginning of the Tools section for each lesson. The scaffolding outlines how the current lesson/TEKS correlated to future TEKS in grades 3 through 5. For example, Scientific and Engineering Practices for a lesson are outlined. The material did not provide information that specifically connected recurring themes.
- Materials provide some guidance for recurring concepts. The Scope and Sequence and the pacing/year planning both offer units for science concepts, for example, "Scientific and Engineering Practices," "Matter and Energy," and "Force, Motion, and Energy." These are all stand-alone units. They do not show any recurring themes within the grade level.

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

- While materials include some practice of knowledge and skills, particularly in student materials, there is limited evidence of spiraling previously taught content throughout the year to support mastery and retention. The Pacing Calendar/Year Planner specifies dates for "revision, assessment, and reteach" after each unit. Neither the Scope and Sequence nor Pacing Calendar references spiraled TEKS for review or core concepts for reteaching.
- Materials provide review and practice of knowledge and skills in the *Learn By Doing STEAM Activity Reader Book – Grade 2 Student Edition* to support mastery and retention. For example, in Chapter 1, Bend It Like Rosa, three activities promote mastery of the content.
- Materials include some project-based lessons that incorporate multiple standards, including some previously taught. For example, the Shape of the Land lesson contains multiple standards. While these project-based lessons allow for some review and practice, materials lack intentional and detailed spiraling to support mastery and retention.
- The Student Textbook offers homework to support review and practice of current knowledge and skills but lacks spiraling of previously taught content.

TPS Steam into Science Grade 2

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials include guidance for the use of all materials. For example, the Teacher Program Guide guides how to introduce the program, describes program components and online materials, provides an online navigation guide, provides support notes for teachers, describe the pedagogy, Texas Essential Knowledge and Skills (TEKS), Limited English Proficiency Standards (LEPS), and describe the engineering design process of Define, Assess, Plan, Implement and Communication (DAPIC).
- The materials are organized to facilitate ease of implementation and use. The *Teacher Textbook* contains an overview of the components similar to the Teacher Program Guide. When the lessons begin, an overview guide lists the TEKS taught, scaffolding information, objective, and misconceptions. Next, the lesson plan lays out the time that will be required, the materials needed, and the time estimation for each activity.
- The materials guide the *Learn by Doing STEAM Activity Reader Grade 2 Teacher Edition instructional strategies*. This book provides reading guidance, comprehension skills, and support for creating and editing drafts. It also includes teacher guidance for activities, vocabulary, the scientific method systems, the engineering design process, and safety in the classroom.

- The materials include guidance and recommendations for the Teacher Program Guide – Grades K–8 Science, with a program introduction, program components, TEKS, LEPS, and a navigation guide to online resources. Within the guide is an explanation of the different components and how they are used.
- The Teacher Program Guide has guides to support teachers in getting started with the material with embedded technology. For example, the Program Components found in the Teacher Program Guide in the Proclamation 2024 – STEAM into Science – Grade 2 explain the use of the materials such as online libraries, *Teacher Textbook* lessons, *Student Textbook* activities, and online resources. Also, there is an Online Library – Interactive Assessment Software Tool. For example, in Assessment Tools – K–8 Science, you can find an Assessment Generator. The assessment Generator offers assessments to be created online.

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

- The materials include standards correlations. For example, in the *STEAM Activity Guide Teacher Edition* content list in science with connections in technology, engineering, art, and math. Each activity lists the science standards aligned to that lesson. However, it does not list the reading or math standards. The “Window Shopping” lesson lists the science standards 2.6A, 2.6B, and 2.6C. There are no math or reading standards named. Also, the “Word Wall Activities” lists the science standards aligned to that lesson. It also details the English language arts, literacy, and mathematics connections but does not identify the specific aligned reading or math standards. In “The Weather Forecast” it lists science standard 2.10C. The materials also list five ELA/Literacy connections and three mathematics connections, but the specific TEKS are not identified.
- The materials include science standards correlations for lesson units, lessons, and activities. The Scope and Sequence Grade 2 consists of the unit, TEKS, and a textbook reference of where those can be found. However, no cross-content standards are listed.
- The materials include standards correlations in an Essential Content Guide in the *Learn by Doing STEAM Activity Reader Book Teacher Edition*. The guide contains the chapter information and the cross-content taught without specific TEKS listed across science, math, and English language arts. For example, chapter 2 is about energy, light, and shadows. In addition, it contains design engineering design, counting and estimation, simple addition, communication of results, and vocabulary. Similarly, chapter one also has engineering design.
- Materials contain TEKS standards correlations for each unit in the scope and sequence. They do not include standards for the math and literacy activities included in the lessons.
- Materials include science TEKS listed for each lesson. In the *Teacher Textbook*, the TEKS for that lesson is listed on the top of each page. For example, the SEP TEKS listed in the lesson “Properties” is 6. A is listed at the top of pages 58–77.

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

- Materials provide a comprehensive list of equipment and supplies needed in the “STEAM into Science Grade 2 Textbook Kitting List,” which alphabetically lists all required materials to complete activities and investigations. A comprehensive materials list is also found In the online teacher support; the materials listed for the program are under the STEAM Science Kitting/Materials Catalog. There is also a grade level list under the STEAM Science

Kitting/Materials List Grade 2. It is unclear if the materials include these items or if the LEAs must purchase them.

- Materials are listed for each lesson. For example, In the *Teacher Textbook*, with each part of the lesson, there is a list of materials needed for that section. In the "How Does Warming Change a Material?" lesson, there are required materials needed for that lesson under the description. The Earth and Space lesson lists "Pictures of Saturn, Jupiter, and Venus, and drawing paper and coloring pens."

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

- Materials include guidance for safety practices in the *Scientific, Investigation, and Reasoning Handbook – Grade 2*. The first lesson, "Working Safely and Responsibly," reviews how to behave safely in science lessons. Also, the *Learn By Doing STEAM Activity Reader Grade 2 Teacher Edition* lists a section titled "Safety in the Classroom." It directs teachers to follow state and school safety guidelines.
- The *Learn By Doing STEAM Activity Reader Book Grade 2 Teacher Edition* has a paragraph about safety on page 11. It is a general reminder to demonstrate safety practices described by TEA and follow school and district guidelines before conducting any investigation.

TPS Steam into Science Grade 2

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 not flexible but 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.

- Materials include support for scheduling considerations, guidance, and recommendations on required time for lessons and activities. For example, the Texas Proclamation 24 Scope and Sequence provides minute suggestions for lessons and class period suggestions. This information is available in the online resources. In the Online Library, the Teacher Support Learn By Doing Scope and Sequence RTI Grade 2 states that it provides an “alternate scope and sequence for RTI students.” Within this document, there is a “recommended duration of lesson/minutes.”
- The materials provide guidance and recommendations on the required time for lessons and activities. The Teacher Resource Guide includes a Pacing Plan/Year Plan. The guide only suggests what days to teach the units. The *Teacher Textbook has* a Scope and Sequence and a pacing calendar available. It also contains the recommended length of time for each lesson. The pacing calendar takes into account holidays and potential teacher work days.
- Materials include pacing suggestions for the grade level. For example, in the *Teacher Textbook,* pg. 60, there is guidance for the number of class periods required, time, and how many lessons are needed for reteaching and revision.

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

- Materials guide strategic implementation. For example, the *Learn by Doing STEAM Activity Reader Book Teacher Edition* contains an essential content guide. The guide shows that the

material begins with the material starts with Unit 1, “The World Around Us,” in which students learn safe science procedures about matter and physical properties. This builds into other units, such as Unit 2, “Energy, Light and Shadows,” and Unit 8, “Spot is Alive,” in which students apply the skills learned in Unit 1.

- Materials guide sequencing. For example, In the Online Resources, the Scope and Sequence illustrate that the units build upon each other in a specific sequence. Unit 1 begins with scientific and engineering practices, which will be applied throughout the other units.
- The materials contain lessons that build on each other. The first unit is the “Tools” Unit. This unit introduces the tools used for the investigations in the following lessons.

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

- Materials suggest ways to complete the curriculum in one school year. For example, in the Online Resources, the Scope and Sequence illustrate the materials can be achieved in 150 class periods of 50 minutes each.
- The materials provide alternative pacing for RTI students in the Teacher Support Learn By Doing Scope and Sequence RTI.
- Materials provide a Pacing Plan/Year Planner with a review of how it would fit into a “typical” single school year. The Pacing Plan/ Year Planner includes a complete August-May view reflecting how the course fits within a single school year. The STEAM Activity Guide includes a “vignette” activity and provides a day-by-day description of each activity. The breakdown informs teachers’ decisions to prioritize lesson components or adjust due to time constraints.

TPS Steam into Science Grade 2

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.	No
2	Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting.	No
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 do not include an appropriate amount of white space and a design that supports and distracts from student learning. Materials do not 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.

- No, materials do not include a design that supports and does not distract from learning. Chapters organize the STEAM *Learn by Doing STEAM Activity Reader Book* Student Edition. However, the chapter name does not always identify the topic, and the topic is not identified elsewhere. For example, Chapter 1 is titled Bend It Like Rosa, and Chapter 3 is titled Lost in a Forest. The Name the Tool section lacks proper labeling for the pictures, which would greatly aid the student's learning.
- In the *Learn by Doing Steam Activity Reader Book Student Edition*, the chapters are labeled by a title. For example, chapter 1, is labeled, *Bend It Like Rosa.* Next, we see pages that are marked *Second Grade Soccer Balls, Bridges, and Butterflies*. Materials do not include a topic, or purpose, and lack tools for the students to use.
- The Teacher Textbook, Grade 2, has a digital table of contents. However, the contents are listed by TEKS. For example, 6B - SIAV - How Do You Group Objects? are not designed in a way for teachers to locate information easily.

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

- No, materials do not embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. The Student Textbook uses many small clipart icons but rarely uses real-life photographs to enhance student learning. For example, in the How Do You Group Objects? Mini experiment, there are nine images: a tennis ball, rubber bands, paper clips, a golf ball, a penny, an eraser, a magnet, a nail, a cartoon-shaped

pencil, a hand holding a sheet of paper, foil, and a scale. Only the foil is a real photograph. Additionally, the textbook covers opaque and transparent objects without clearly identifying which picture corresponds to each type. While there is text above this image labeling them the images provided are not ones most second graders would be familiar with.

- The materials include few age-appropriate pictures and graphics that support student learning and engagement. For example, the STEAM Activity Guide has few real-life pictures or graphics supporting student learning and engagement. The guide has five pictures on eight pages; 2 of the pictures are repeats and clipart, and the others do not support learning. The pictures include a photograph of a story that was written as an example and a photograph of a combined rocker scale. The clipart includes a picture of a man building a brick house and a boy with a speech balloon that is used to indicate discussion. The boy with the speech balloon repeats to note a discussion. The picture of the combined rocker scale supports learning by showing students a visual of this actual scale.
- In the STEAM *Learn by Doing STEAM Activity Reader Book* Student Edition, most graphics are clipart, not photographs, to support student learning. Students do not see scientific representations. For example, in Chapter 7, students read about animal needs, adaptations, and life cycles. There are 14 images, but only three are actual photographs. Photographs on these pages include a Thorny devil, a Monarch butterfly, and a pink flower. Students can see other easily understood graphics of a monarch butterfly. The butterfly is labeled to show important parts of the butterfly, such as the proboscis, abdomen, legs, head, and wings. This graphic allows students to see important features.

Materials include digital components that are free of technical errors.

- The materials include digital components that are free of technical errors. The STEAM Activity Guide includes activities that are free of inaccurate content materials or information. The materials are also free of wrong answers to questions asked. For example, the Word Wall Read Aloud Activity “It’s a Starry, Starry Night” includes accurate information about the phases of the moon and how the position of the moon affects how we see it.
- The materials are clear of errors in the STEAM Activity Guide. For example, in the Learn by Doing STEAM Activity guide Chapter 1, teacher digital materials are free of spelling, grammar, and punctuation errors. In the Teacher Textbook, Energy chapter, teacher digital materials are free of inaccurate content materials or information. Resources include content-related text, assignments, and sample responses. The materials provided correct answers with appropriate teacher guidance.

TPS Steam into Science Grade 2

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.	No
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.	No
3	Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.	No
4	Materials integrate digital technology that is compatible with a variety of learning management systems.	No

Not Scored

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

Materials do not integrate digital technology and tools that support student learning and engagement. Materials do not integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. Materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. Materials do not 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 do not integrate technology and tools that support student learning. Although the materials include online assessments in the Interactive Assessment Tool, materials do not integrate digital technology and tools that support student learning and engagement. The materials do not include opportunities for learning through video and audio clips, web links, photos, games, simulations, or data sets.
- The online platform contains a Texas Proc 24 Science - Grade 2 Tools section. It is a series of photographs and illustrations, such as a photograph of foil, an illustration of a frog's life cycle, and a photograph of an aquarium.
- The program provides a Reader Activity Library and an Assessment Generator. Materials also include information that states students have the ability to take assessments online. However, reviewers are unable to review this component.

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

- Although the materials include online assessments in the Interactive Assessment Tool, they do not integrate digital technology to support student engagement with the science and

engineering practices, recurring themes and concepts, and grade-level content. There are no interactive resources for instruction, such as videos or interactive labs.

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

- Materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. Although the materials include online assessments in the Interactive Assessment Tool, they do not allow teachers and/or students to collaborate. The assessments are designed to be completed individually after they are printed in paper-based form by the teacher. Materials indicate all online resources are separate links and not interconnected, thus preventing digital collaboration among students and teachers.
- The materials do not recommend platforms, links, or resources on how those digital suggestions can be accessible to students and teachers. Materials do not provide suggestions or resources for collaboration between teachers and students.

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

- Materials do not integrate digital technology that is compatible with a variety of learning management systems. Materials do not indicate which operating systems they are compatible with. However, the online materials are accessible via a computer and a mobile device.

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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.	No
2	Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.	No
3	Materials are available to parents and caregivers to support student engagement with digital technology and online components.	No

Not Scored

Materials do not meet the criteria for this indicator. Digital technology and online components are not developmentally and grade-level appropriate and do not provide learning support.

Digital technology and online components are not developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression. Materials do not provide teacher guidance for the use of embedded technology to support and enhance student learning. Materials are not 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.

- No, the digital technology and online components are not developmentally appropriate for grade 2 students. For example, most questions materials provided in the Assessment Generator are open-ended, such as, "What is a method of collecting your observations as evidence?" Materials do not provide sentence stems or other supports for students, such as speech-to-text capability or supporting graphics and pictures. Assessment item TEKS 5C, Database ID 197, asks, “Look at the image above (there is no image). How would you describe this image in terms of quantities?” Of the over 400 assessment choices for second grade, only six items contain graphics or images to support students' knowledge.
- The only digital technology and online components included for students are Online Libraries of print-based content and resource materials. Libraries included are Assessment Tools, Reader Activity Books, Student Reasoning Library, Blackline Master Library, STEAM Library, and the Digital Frog Library. There is an interactive assessment tool but no other interactive primary components. For example, in the Learn by Doing STEAM Activity Reader Book Student Edition Online, Chapter 3, Lost in a Forest, students read two pages of advanced text. In Chapter 5, Build a Bridge, materials include seven pages of text-only information. The section does not include subheadings, bold text, or other text features to support reading and comprehension. Materials do not provide a developmentally appropriate text-to-speech feature for grade 2 students.

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

- No, materials do not provide teacher guidance for the use of embedded technology. For example, materials provide a Crosscutting Library of photographs. The photograph library includes general topics like systems and models, weather protection, and trees. When each topic is selected, the teacher is directed to a Google Photos page of those images. The “trees” link takes you to a page with a collection of 47 trees on the Google Photos link. However, materials do not provide teacher guidance for embedding the online photo library within lessons and assessments to enhance student learning.
- Materials provide a video for teacher guidance on the interactive software tool and the assessment generator. Materials do not provide additional videos for resources such as the intervention focus tutorial. Materials do not include step-by-step instructions for setting up and using technology.

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

- No, materials do not provide parent and caregiver resources for supporting student engagement with digital and online components. Materials state, "TPS Publishing Inc. provides parent digital access to family to families for all homework assignments, and to the list of keywords and definitions." Materials state that the Family/Caregiver Guide provides guidance for parents and caregivers about how to use digital materials. However, the Navigation Guide is designed for teachers, not families. The Navigation Guide shows how teachers can access the textbooks, Assessment Database, Interactive Assessment Tool, and Intervention Focus Tutorial. The Family and Caregiver Guide includes information about how to navigate textbooks and the Assessment Generator. The guide does not include how to support student engagement with digital technology.
- According to the Teacher Program Guide, TPS provides caregivers with digital access to homework materials, TEKS and ELPS information on assignments to share and discuss with students, and access to TPS glossary cards, which caregivers can review with students. Materials lack teacher guidance in setting up digital access to caregivers.