TPS STEAM into Science Grade 6

TPS STEAM into Science Grade 6 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 6	100%	100%	100%	100%
Grade 7	100%	100%	100%	100%
Grade 8	100%	100%	100%	100%

Section 2. Instructional Anchor

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

Section 3. Knowledge Coherence

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

Section 4. Productive Struggle

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

Section 5. Evidence-Based Reasoning and Communicating

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

Section 6. Progress Monitoring

- The materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.
- The materials include 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 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 a variety of research-based instructional methods that appeal to a variety of learning interests and needs.
- The materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

Section 8. Implementation Supports

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

Section 9. Design Features

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

Section 10. Additional Information

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

TPS STEAM into Science Grade 6

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 the recurring themes.	PM
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

Partial Meets | Score 2/4

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

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

Evidence includes but is not limited to:

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

- The *Activity Reader Book* provides lessons with recurring themes, such as a background story and vocabulary that build upon past units. The scientific and engineering practices (SEPs) are hands-on activities that require the use of scientific equipment and materials. Opportunities for cross-curricular content are intertwined within the investigation.
- The sixth grade STEAM Reader asks students to practice observation skills by looking at pond scum through a microscope. After group discussions, students are asked to create hypotheses based on the phenomenon. This practice is a common occurrence in each chapter.
- A section in the *Learn By Doing STEAM Activity Reader Book* asks students to demonstrate mastery of identifying metals, nonmetals, and metalloids by providing descriptions of sample materials and matching them. Another section asks students to use the scientific method when

creating and analyzing density columns. They are also encouraged to practice density equations and manipulate the formula to solve for mass and volume.
- Each chapter begins with an anchoring phenomenon and then provides students with different types of activities such as class discussions, research, vocabulary, reading comprehension, math, and experiments.

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

- The lesson plan section of the *Teacher Textbook* provides students with multiple opportunities to develop, practice, and demonstrate mastery of grade-level TEKS through activities, guided discussions, and investigations. The connection between overarching concepts and recurring themes is not explicitly stated on a consistent basis. The STEAM Activity Guide - Teacher Edition are content-related TEKS and does not provide opportunities to make connections between and within overarching concepts using the recurring themes because the recurring themes are not identified.
- Newly introduced TEKS list overarching concepts and recurring themes. The lessons provide students with opportunities to use models, patterns, and systems to identify the connection between themes and concepts. Activity 3, The Pond Ecosystem in the STEAM Activity Reader, and Chapter 5, Activity 4, Solar Oven Design, are strong examples of scaffolding. The materials do not explicitly identify the recurring themes and concepts.
- In the Learn By Doing STEAM Activity Reader Book Grade 6, the instructor is provided with guidance on how to facilitate a discussion on specific systems. This guidance is followed by an activity that allows students to stamp the connection between the concept and themes.

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

- In the STEAM Activity Guide Teacher Edition, thematic units and learning cycles strategically and systematically outline the order in which students develop key content knowledge and skills that are grade-level appropriate.
- In the *Teacher Textbook*, the Beginning of Strand chart guides the instructor through the best possible teaching strategies that will lead to mastery of grade-level TEKS. Instructors that need to provide students with additional help are guided to use the focus tasks before assessing students or other alternate lessons. Students who know the information but lack understanding require instructors to use STEM Projects to aid in learning.
- In the *Student Textbook*, the lesson begins with an overview of the content and then highlights keywords that are within the chapter. The lesson then allows students the opportunity to investigate, test their knowledge, and reflect on what was learned. The lesson lists are TEKS aligned and show how they are aligned.

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

- The *Student Textbook* contains focus questions, which ask students to answer key questions within the investigation. The Test Yourself section contains questions that allow the student to

test their knowledge about the new learning. Test questions for individual TEKS can be found in the Online Library under assessment tools.

- In the STEAM Activity Guide- Teacher Edition, in the Preface section under Problem-Solving, there is an overview that explains how students are taught to problem-solve through the "DAPIC" approach. Instructors are also provided with a chart that outlines student and instructor responsibilities throughout the learning cycle.
- Students' key roles in exploring include interacting with materials, planning/designing and building models, collecting and recording data, and making predictions about their model during investigations. These roles allow students to effectively engage in problem-solving.
- Student and Teacher roles are specified in the “DAPIC,” taking away from students’ ability to consistently plan and conduct investigations unless stated otherwise.
- In the Learn By Doing STEAM Activity Reader Book, students practice and apply each part of the scientific method by observing yeast cells under a microscope then coming up with a hypothesis on what they would expect if they fed the yeast more sugar. Another section asks students to plan, build, and test incline planes. Students also ask and answer questions in a discussion-style setting.
- The Teacher Program Guide gives instructors advice on how to have students plan out-of-classroom field studies and classroom investigations. The materials provide opportunities for students to plan investigations, with the exception of the pollution project. Students are asked to research, plan and gather evidence for investigations. The materials provide multiple opportunities for students to plan and carry out an investigation.

TPS STEAM into Science Grade 6

Indicator 2.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- In the *Teacher Textbook*, the lesson plan has a section titled Phenomena, which supports student learning. Phenomena are found throughout each unit, anchoring students in the why and how of the learning.
- Activities found In the Learn By Doing STEAM Activity Reader Book- Teacher Edition follow science and engineering processes. Students are consistently asked to develop hypotheses, collect and analyze data, and summarize activity results as they align with the phenomenon.
- The instructor is provided with the lesson purpose and steps of the engineering process that is TEK and grade-level aligned. The activities have students practice scientific and engineering practices that align with the concept.
- The *Student Textbook* - Grade 6, highlights activities that drive student learning and mastery of the TEKS. A section asks students to identify physical and chemical changes while viewing before and after images of certain objects. Bullet g asks students to draw images comparing and contrasting pure substances, homogeneous mixtures, and heterogeneous mixtures while providing examples.

- The *Teacher Textbook*, under the scaffolding section, highlights the alignment between the anchoring phenomenon and the lab assignments. Students are asked to use previous experiences with scientific tools and background knowledge to help guide them through lab assignments. Throughout the chapter, they practice each section of the scientific method, using grade-level concepts that are TEKS aligned to aid in learning.

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

- In the *Teacher Textbook*, instructors are provided an overview of how to access students' prior knowledge and leverage the learning. The lesson plan that discusses SI units has instructors lead students through scaffolded questions to gauge their prior knowledge.
- There is a section on phenomena and scaffolding information from the previous year's TEKS located in the lesson plan. It highlights what standards are built upon and what students should already know.
- In the Learn by Doing STEAM Activity Reader Book Grade 6, instructors learn that mastery of student activities is dependent on a certain level of student comprehension and knowledge. In order to achieve high levels of student mastery, students must apply scientific principles to problems. Instructors are provided with different ways to scaffold student learning based on prior knowledge.
- Students are continuously asked to use the scientific method to solve phenomena and engineering problems. The materials are scaffolded to where the previous units' lessons, themes, and concepts come back up and are used again in a different way.

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

- Lesson plans are clearly outlined with activities and investigations that are aligned with the TEKS. The lesson plan also contains objectives, vocabulary words, and a lesson overview to better support student learning.
- In the Learn By Doing STEAM Activity Reader Grade 6, an outline is provided for the instructor that shows how and when the scientific method is applied throughout the unit. It is recommended that instructors review the process on a consistent basis.
- Teachers are provided with clear student learning objectives that are aligned with the TEKS and the anchoring phenomenon. Instructors and students are provided with the scientific method flowchart to aid in learning how to solve the problem in each activity.

TPS STEAM into Science Grade 6

Indicator 3.1

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

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

Meets | Score 6/6

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

Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels. Materials are intentionally sequenced to scaffold learning in a way that allows for 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 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.

- Instructors have access to a scope and sequence that is located in the *Teacher Textbook* as well as the Online Library. It outlines the order in which students will learn the TEKS and offers guidance to instructors on how to scaffold up or down depending on the needs of the student.
- In the Teacher Program Guide - Grades K-8 Science, there is a section labeled “Support For Teachers” that states the STEAM storybook provides opportunities to develop knowledge and skills gradually through vertical alignment with the TEKS.
- The *Teacher Textbook* shows instructors how the materials are vertically aligned and designed for students to build and connect their knowledge and skills across grade levels. Students study and complete descriptive, comparative, and experimental investigations through scaffolding of knowledge and skills.
- In Grade 5, students are asked to use scale, proportion, and quantity to describe, compare, and model different systems. In Grade 6, students build upon learnings in Grade 5 and begin to analyze the limitations of these systems. Grades 7 and 8 increase the rigor further by having students analyze how scale, proportion, or quantity affects the structure or performance of a system.

TPS STEAM into Science Grade 6

- Each unit in the *Teacher Textbook - Grade 6* provides students with opportunities to apply learned knowledge of science and engineering through the application of appropriate tools. Students are provided with different grade-level-appropriate tools during the investigations.
- Chapter 2 of the Learn By Doing STEAM Activity Reader Book Teacher Edition - Grade 6 describes matter, atomic structure, and its subatomic particles. It refers to the periodic table and describes the basics of an element and how it is aligned to an atom. Students are reintroduced to this TEK in grade 8.
- Grade 6 students are asked to clarify evidence on what may have caused a rise in global temperatures. In Grade 5, students learn about natural resources and their importance. They quickly learn how to minimize their negative impacts on the world by using the scientific method to design and explain possible solutions. In Grade 4, students learn why natural resources are important and explain their uses in the modern world. This path backtracks all the way to kindergarten. This shows clear alignment through the grade levels.

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

- In the *Teacher Textbook,* each lesson has a Scaffolding Information section which provides the instructor with the current TEKS and how they align with past and future TEKS.
- The *Teacher Textbook* has students focus on systems and organisms. In Grade 5, students were only asked to explain how factors or conditions impact stability and change within systems and organisms. In Grades 7 and 8, students explain and analyze how factors or conditions impact systems and organisms.
- Each chapter of the Learn By Doing STEAM Activity Reader Book-Teacher Edition is designed to allow the students to develop knowledge gradually. Activity 1 focuses on reading comprehension, which gives students the opportunity to learn new content.
- In Activity 1, students read the chapter text and answer reading comprehension questions on energy. Activity 4 asks students to apply their knowledge of how energy waves are absorbed and reflected to create a functional solar oven.
- Activities later in the chapter allow students to apply their knowledge by exploring concepts through investigations and analyzing data from those investigations.
- In Activity 3, students analyze a bar graph of solar oven temperatures by month. They identify the mean, median, and mode. The activity's goal is for students to connect the idea that the Earth is tilted closer to the sun during the summer, allowing the sun's energy to reach Earth faster.
- In the *Learn By Doing Teacher Textbook - Grade 6*, students begin each activity with a reading comprehension activity and apply that knowledge to create a simulation of acid rain. They see the impact of acid rain and use that information to research other forms of pollutants and their effects. Students are asked to make posters, dioramas, etc., and analyze other students' work to learn about the effects, and students are then provided with cross-content materials (math and reading) to practice data analysis and use CER (claim, evidence, reasoning).

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

- In the *Teacher Textbook,* the lesson plan consists of a description of the concepts that students will be focusing on as well as the NGSS standard that is aligned with the TEK.

- Materials expect students to construct explanations and design solutions (which builds upon K-5 experiences) and learn how system and system models can be used to represent systems and their interactions. Materials expect students to obtain, evaluate, and communicate information as well as identify structure and function. The recurring theme of TEKS and NGSS alignment is present in each lesson.
- In the Learn by Doing STEAM Activity Reader Book Grade 6 Teacher Edition, specific core concepts such as systems and systems analysis are a recurring theme in multiple lessons. The Koi Pond Mystery in Chapter 1 describes the cell theory and organelles. Students learn how each organelle is part of a system that contributes to the cell's function.
- Lesson plans provide teachers with a clear overview of the phenomenon with a description of how the TEK was addressed in prior grade levels. The materials are grade level, with recurring themes and concepts that are practiced in other contents. Each element of the scientific and engineering process is present in all activities, leading to grade-level mastery of the content.
- Materials include a Project Based Lesson. Students are to develop a model of how the geosphere, atmosphere, biosphere, and hydrosphere interact. The instructor reads how the standard was addressed in grades K-5. For example, Grade 2 expects students to describe that the sun is a star and provides heat and light. Grade 4 expects students to collect and analyze data on how the temperature and length of daylight changes each season.
- Materials have students use the scientific and engineering process to build a model of the atmosphere, biosphere, geosphere, and hydrosphere in the state of California. Although students are provided with a procedure, they are still provided with the flexibility to follow through with the process. They are also expected to create a coordinate plane to represent their model and receive feedback from their peers. Students practice coordinating planes in Grade 6, allowing them to practice mastery through cross-content learning.
- Materials are scientifically accurate. The Teacher Textbook-Grade 6 covers the topic of scale when it comes to our universe. It correctly states that 1000 Jupiters can fit inside the sun even though, in the diagram, the image of Jupiter is about half the size of the sun. Materials suggest returning to the Grade 5 materials to cover key terms students may struggle with.

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

- In the *Teacher Textbook,* the mastery requirements are within the boundaries of the main concepts of the grade level. There are three to four multiple-choice questions, a math link question, and a literacy connection to be answered at the end of the chapter.
- Students start with “What Have You Learned,” where students must draw a labeled solar system model with consideration to scale, proportion, and quantity.
- Students also do the “Test Yourself." They are provided with four questions and place a check mark if the answer is true and an x if false. The goal is to ensure students can define the key vocabulary words listed at the beginning of the chapter. This activity is followed up with a math and literacy challenge aligned to the key concepts of scale, proportion, and quantity of celestial objects.
- The math challenge expects students to draw and label a scale model of an object with component parts. The literacy challenge expects students to draw a comic strip of them flying through space, comparing the scale, proportion, and quantity of celestial bodies they view.
- In the Yeast Chemistry activity, the investigation requires students to analyze the results of their investigation through observations. Instructors encourage students to use academic vocabulary in the post-investigation discussion.

TPS STEAM into Science Grade 6

- There is an Interactive Assessment Tool for Grade 8 that has Grades 6-8 TEKS-aligned questions. These are fill-in-the-blank type questions that the instructor must review before the grade is given. One of the questions, “What is the structure of the ribosome?” is covered through Grades 6-8. Answer expectations can be aligned with the expected mastery level.
- Materials define student learning boundaries through learning objectives. One learning objective is that students learn about potential energy, kinetic energy, and friction by building and testing a model roller coaster. As students differentiate the types of energy, they learn the relationship between potential and kinetic energy, how energy is conserved, and how to apply these ideas to the activity. The learning objective matches what students are expected to do during the “Test Yourself” and Math/Literacy Connections activities at the end of the lesson.

TPS STEAM into Science Grade 6

Indicator 3.2

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- The Online Library - Teacher support section contains information on the horizontal and vertical alignment that supports student learning through the STEAM storybooks.
- On horizontal alignment, "the STEAM storybooks allow students to engage in a curriculum that builds upon knowledge and skills aligned to the TEKS." Additionally, "As students progress through the storybooks, science knowledge is built within each chapter, beginning with the story introducing science concepts interwoven throughout the storyline."
- On vertical alignment, "the process begins in kindergarten, where the foundation is started and expands through upper-grade levels. The scientific content is reintroduced and reviewed in each grade level, and new content is introduced at a higher level with increasing complexity."
- The section on Background Knowledge In the *Teacher Textbook* clarifies what prior knowledge students should have. It lists key vocabulary words students should know (vector and scalar). Instructors can also find this information when students learn about displacement through graphing.
- In the Learn by Doing STEAM Activity Reader Book Grade 6, the appendices provide instructors with a guide highlighting how recurring themes and content are aligned in each chapter. For instance, Chapter 1, "The Koi Pond Mystery," is aligned to the following science TEKS: Organisms

and Environments 12 (ABC) and 13 (ABC). These are TEKS previously covered in elementary and will be covered in higher secondary and high school. Materials are vertically aligned throughout the grade level.

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

- Each lesson plan in the *Teacher Textbook* has a section titled Common Misconceptions. It provides guidance on how to address misconceptions that students encounter when learning new content. One example states that a major misconception is that students think displacement can be described by location alone. There is further information on how to address that misconception on the same page.
- In the Learn By Doing STEAM Activity Reader Book-Teacher Edition, the instructor is prompted to have students restate the instructions to check for understanding. This technique supports the teacher in recognizing the student's barriers to conceptual development. This prompt is stated at the beginning of the page, which is a consistent trend throughout each activity.
- Each unit follows the same lesson flow, which allows instructors to catch and address misconceptions. The unit starts with the objective, scaffolding information, a scientific explanation, and common misconceptions. Units provide a clear example of what is continuously found in each unit.

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

- In the *Teacher Textbook,* the instructor is provided with lesson plans that detail how to scaffold, avoid common misconceptions, and how to implement the lesson. It also provides information on how to effectively use materials.
- The Online Library-Teacher Program Guide provides the instructor with research-based strategies, information, and guides on how to use the program components. It states how the Learn By Doing Activity Reader Book is used as an introduction that provides information for teachers about reading, comprehension skills, scientific method, and safety. Each chapter includes a story to introduce the science concepts about to be taught.
- The How to Use the Program explains the intent and purpose of the instructional design of the program, stating that, “students must be with lessons that provide full cognitive involvement.” Students learn best by doing.
- In the Family/Caregiver guide, implementation supports and a navigation guide assist with progress monitoring. A diagram of the navigation guide in the textbook can assist caregivers with students learning at home.
- Instructors are provided with a scope and sequence, a pacing plan for the year, help videos, and navigation videos that explain why and how the program is designed. This information can be found in the Teachers Program Guide.

TPS STEAM into Science Grade 6

Indicator 4.1

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- The *Teacher Textbook* has students read the science textbook as a class and answer the focus questions that follow. These questions integrate reading and writing. The students are to review their answers as a class to check for understanding, then complete the "What Have You Learned" exercise, which incorporates writing.
- In the STEAM Activity Guide-Teacher Edition, students are expected to communicate designs through sketches, record ideas in a journal, and design/make a project. Students use their journals to record their ideas and sketch straight, horizontal, and vertical lines. In the Using Sketches to Communicate section, students are asked to describe their sketches in words. In the Getting the Idea section, the student acts as a scientist and engineer to make sketches to quickly and accurately communicate ideas to others. Each activity supports students' sensemaking through reading, writing, thinking, and acting like scientists.
- Students have the opportunity to write and think in the Literacy Connection. One lesson has students create a T-shirt that teaches the states of matter and different types of physical

properties. Another lesson has students read a short article about diamonds. They answer two questions about how diamonds are mined and why they are so valuable. They are then asked to think about diamonds they've seen and describe why they are so beautiful.

- The Classroom Safety lesson in the Student Journal starts by providing students with an image and asking them to investigate the classroom. The scenario in the image is that each student is doing something wrong, and therefore it needs to be identified within a table. The investigation part requires the teacher to provide the TEA safety standards and discuss as a class how to keep oneself safe. The students are to then create a poster or graphic organizer by listening to all the safety rules the class agrees on. The activities that follow require students to plan and conduct a descriptive investigation, comparative investigation, and experimental investigation.
- In the *Teacher Textbook,* students learn that an element is a pure substance represented by chemical symbols. Students read the chapter alone before the group discussion on what an element is and how to read the periodic table. Students are then placed in small groups to research which elements are the Earth's crust, living matter, oceans, and atmosphere. Students then are assigned elements from the periodic table to create a display-sized image. This activity allows students to make sense of how many elements can make up one object through reading, writing, and thinking.

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

- In the STEAM Activity Guide-Student Edition, in the Applying the Idea section, students are to research familiar and unfamiliar inventors and use tools and create prototypes
- In the Family and Caregiver Guide K- 8, in the Program Components section, it stated that the STEAM Activity Guide includes Amelia Rose Reader Activity content, Word Wall Read Aloud activities, and stories aligned to cross-curricula across activities
- Students are provided multiple opportunities to engage in various scientific texts. In the *Teacher Textbook*, a student is reading about the Transformation of Energy. Students gather evidence in the Potential and Kinetic Energy text to use in the following investigation. Another lesson has a shorter article on Thermal Energy, where students learn about conduction, convection, and radiation. They apply the learning through the Engineering and Design Process (EDP) to prevent an ice cube from melting.
- In Learn By Doing STEAM Activity Reader Book Grade 6 - Student Edition, each chapter has several activities that require students to use the background information text and vocabulary terms to answer questions. For example, in chapter 1, “Koi Pond Mystery,” students read the story about the phenomenon and then write a response to two prompts. Students use the responses as evidence for their class discussion to support their hypotheses and theories. The end of the chapter ends with a vocabulary review that allows students to demonstrate mastery of the TEK and assist in future lessons.
- The *Teacher Textbook* provides a science article about how to identify if a source is reliable. After reading the text, the teacher introduces a claim that a pair of running shoes will make anyone run two times as fast. This idea leads to a class discussion of the importance of evidence and the importance of evaluating it. In activity 1, students are given Lamarck's claim about why giraffes' necks were so long. Students are asked to fill in a credibility table from multiple sources to differentiate. This activity teaches students how new evidence makes past claims no longer credible.

TPS STEAM into Science Grade 6

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 STEAM Activity Guide - Teacher Edition, Chapter 1 is titled Need for Speed. The student is expected to convert data tables into a graph. Chapter 2 is called Show Me the Numbers. In this investigation, students are to use graphical representation to identify patterns. In Chapter 7, The Nature of Polymers, students are asked to submit data tables or graphs showing the proportions and length of time for mixtures that were poured into beakers.
- There are many opportunities for students to engage in various written and graphic modes of communication. One lesson provides a data table to communicate the physical properties of mysterious substances that students investigate. Another lesson intertwines the EDP and a graphic organizer. Students use the EDP to create a hot pack while learning about endothermic and exothermic reactions.
- The STEAM Arts Project Guide K-12 provides numerous hands-on projects students can create that are TEKS aligned, such as “Sled Dogs!” Students identify how forces act on objects and also identify the changes in position, direction, and speed. They then create a dog sled by sketching an image of their model and then creating it by using popsicle sticks, clay, string, and small wheels. At the end of this project, the instructor leads a class discussion, and students work on assessment questions independently.
- The *Teacher Textbook* provides students with a graphic organizer labeled metals, nonmetals, metalloids, and rare earth metals to use while reading the chapter text. This graphic organizer aligns with the objective that students should be able to differentiate between them using the periodic table and their properties. Students use this information to play the “What am I” game so they can ask in-depth questions before having an instructor-led discussion on the aforementioned categories.

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

- In the STEAM Activity Guide - Student Edition, the students act as scientists and engineers to apply and expand their knowledge of phenomena to make sense of concepts. In Chapter 13, students apply the knowledge that they learned about generating electricity to lead the task for the mayor and present their findings. In the expanding knowledge section, the students are given four options to expand their learning and connect it outside of the classroom.
- In Learn By Doing STEAM Activity Reader Book - Teacher Edition, students use the EDP to construct a solar oven and then record the temperature over time. Activity 4 has students build and test their own ovens' ability to heat water. Students that struggle to create an effective oven have the opportunity to go back and reconstruct their model.
- In the Learn By Doing STEAM Activity Reader Book, the objective of Activity 5 is to build and create an inclined plane. Students test the ability to lift a box to the height of the plane versus pushing it up the plane. After constructing, the materials prompt a discussion and reflection. Instructors are prompted to ask if the plane made things easier and why, how they could use the plane in their daily life, and what they learned. If students struggle, they are provided multiple opportunities to redesign the model based on what they learned.

TPS STEAM into Science Grade 6

Indicator 5.1

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

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

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

Evidence includes but is not limited to:

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

- The chapter Alternate Ways in the Teacher Edition of the STEAM Activity Guide requires students to make a hypothesis about which liquid will hold the heat the longest while being in the sunlight. Students acquire evidence to support their hypothesis in the Exploring, Getting The Idea, and Applying sections as they learn more about renewable energy.
- Chapter 6 of the STEAM Activity Guide - Student Edition focuses on seasons and how the temperature changes in different seasons. In the Applying the Idea section, students make a hypothesis on the seasonal changes if Earth had no tilt after learning about why Earth's tilt causes seasonal changes.
- Experiment 4 in the Newton's Laws Of Motion section of the *Student Textbook* requires students to provide evidence they've acquired from experiments one through three to create a scientifically accurate poster on what two factors can impact an object's change in motion.
- In the *Teacher Textbook,* instructors ask students to create a bubble map on lactase tolerance mutations. Students are asked to hypothesize if the mutation for the trait of lactase persistence increased in frequency because it gave herder populations a survival advantage. Students are expected to use evidence from the chapter reading to support their hypothesis.

- Activity 5 of the Ramps and Robots lesson in Learn By Doing STEAM Activity Reader Book - Student Edition has students build and test an inclined plane. The activity asks students to write out their hypothesis and to describe how the inclined plane can make work easier when moving books up a ramp. After conducting the experiment, students record their results and calculate the mean score for each test and control group.
- Activity 2 of the Floating Balls and Sinking Stones lesson in the Learn By Doing STEAM Activity Reader Book Teacher Edition has students gather samples of liquids of different densities and layer each substance on top of each other. Students write a hypothesis describing what they expect to happen when the liquids are mixed. They record their findings as labeled drawings and discuss if the evidence from the activity supports their hypothesis.

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

- Each project in the STEAM Art Projects component in the STEAM Activity Guide-Student Edition has a list of science vocabulary words that students should focus on while completing the project. The vocabulary is embedded within the steps of the project as opportunities to develop context. In the Austria and Oceania Project, the focus vocabulary words consist of average, distance, speed, measurement, time, etc.
- In the Family and Caregiver Guide, the Learn By Doing Steam Activity Reader Book is referenced, and it states that students would review the vocabulary using vocabulary cards. The objective of the vocabulary activity is for students to understand the meaning of the words and recognize when the word is spoken.
- In Learn By Doing STEAM Activity Reader Book Teacher Edition, there is evidence that the material includes embedded opportunities for students to develop and utilize vocabulary. For example, in Chapter 4: Solar, Wind, Geothermal. Capturing Energy contains the reading content with vocabulary embedded in the passage. In Activity 6, students review the vocabulary words to understand and use them in a speech.
- The Student Journal has several units that provide opportunities for students to develop and utilize scientific vocabulary. For example, in the Investigation section, students match the image with the vocabulary term by drawing a line to it. In the What Have You Learned section, students match vocabulary with pictures by writing down the correct term and then creating a poster or graphic organizer to explain how the structure is related to its function. In the Test Yourself section, students answer four vocabulary-based questions.
- In the Blackline Master K-8 section of the Online Library, there is a glossary that focuses on key terms that are aligned to the grade-specific TEK. Examples of those terms include but are not limited to abiotic, biotic, bedrock, autotrophs, and heterotrophs.
- Throughout the Student Journal, students are provided four quadrants with key vocabulary words in them. Students write characteristics of the key vocabulary words with pictures to better remember the words. An example of these terms include but are not limited to air quality, pollutants, and primary and secondary pollutants.

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

- Chapter 1 in the STEAM Activity Guide - Teacher Edition has students reflect on prior data and knowledge in the form of a discussion. During the discussion, students can ask questions, share data, answer questions, and compare data. This process allows students to learn and construct concepts for themselves.

- In Chapter 2 of the STEAM Activity Guide - Student Edition, underneath the Gathering Data - Another Way section, students discuss why labels on graphs are important and why using graphs is beneficial to display information.
- Each chapter In Learn By Doing STEAM Science Activity Reader Book - Teacher Edition has activities that integrate argumentation and discourse to support students' development of the content of the TEKS and the concept. For example, Activity 4 in Chapter 1, "The Koi Pond Mystery," is a class discussion on Biological Systems. Students examine a system relevant to the chapter and discuss the parts of the system and their interdependence on the system function. Activity 3 requires the teacher to ask the students why the Cell Theory is a theory and not a hypothesis.
- The STEAM Activity Guide does not provide consistent opportunities for student argumentation. The content is not in every lesson using the term argumentation but appears in most lessons in all components in appropriate lessons for the content to be integrated sensibly. Instructors are not consistently told when, where, and how the discussion should be facilitated. The Teacher Textbook, Grade 6 does inform the teacher; however, this is not throughout the materials. Instructors are met with prompts such as, "Encourage discussion and courteous debate" or "you may want to have student groups debate about the best solutions." Students often record their data and come back for a class discussion to discuss key points and clarify misconceptions. Merriam-Webster states that the definition of argumentation is the act or process of forming reasons and of drawing conclusions, and applying them to a case in discussion. Students are asked to discuss and debate often but not to argue their findings rooted in data from their investigation on a consistent basis.
- The Student Journal allows students to be placed in pairs to engage in respectful scientific argumentation. They argue different scientific viewpoints. Students are provided a chart where they can write out the problem, proposed solution, agree/disagree, and the solution if they disagree.

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.

- In the STEAM Activity Guide- Student Edition, in Chapter 2, Show Me the Numbers, in the Gathering Data- Another Way section, students discuss why labels on graphs are important and why using graphs is beneficial to display information.
- Chapter 4 in the STEAM Activity Guide - Student Edition has students come up with a plan to accomplish a task. Students write a plan explaining the parts of their experiment. Materials in this chapter focus on communication through sketches and journaling ideas.
- Chapter 2, Kitchen Chemistry, in Learn By Doing STEAM Activity Reader Book, has students observe and describe an image of yeast cells in Activity 3. Students explore how to feed the yeast to make them release gas. Students then create a graph of the sugar added compared to the volume of foam. Students engage in argumentation if the data they acquired support their hypothesis and discuss their results with peers.
- Students read the chapter Fire and Water in the Learn By Doing STEAM Activity Reader and answer the reading comprehension questions that follow, using text evidence to support their answer. Examples of those questions include Why did they need to light a candle?, Describe the organization of the Periodic Table, What do elements in the groups have in common? and Differentiate between chemical and physical changes.

- The *Teacher Textbook* has students think about what they've learned in the Earth-Sun-Moon lesson and how they would communicate that to other scientists and the public. Students can write out a newspaper article, do a presentation, or create an educational video. The text gives students guidance on what to do during other presentations, like how to practice understanding or listening skills.

TPS STEAM into Science Grade 6

Indicator 5.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Under the Applying The Idea section of Chapter 1 in the STEAM Activity Guide - Teacher Edition, students assemble a mousetrap car without receiving the step-by-step process from the instructor. The instructor facilitates discussion amongst groups during the process. Students conduct three trials at different heights and record the data. The instructor asks why the trials at different heights are necessary when conducting the investigation.
- Under the Investigation section of Chapter 2 in the STEAM Activity Guide - Teacher Edition, the instructor provides students with guidance on completing the task of graphing their data. The instructor asks open-ended questions to keep students on track. The instructor guides students to try new approaches to gathering data. The instructor encourages students that are struggling with the placement of zero examples of graphs.
- The Energy Transfer lesson in the *Teacher Textbook* has students create a convincing explanation of how a roller coaster works based on the motion and energy concepts. The Teacher Guided Questions to Inquiry are to be used by the teacher to get the students started on their inquiry. It states that "students' answers will vary but also says what they should mention…"
- In Learn By Doing STEAM Reader Activity Reader - Teacher Edition, the materials provide teacher guidance on expecting students' responses and the use of questioning to deepen their

thinking. Activity 5 of Chapter 6, titled Ramps and Robots, has students build and test an inclined plane using the scientific method. Students read the chapter on inclined planes or ramps that were built for Yue's wheelchair. Students write their hypothesis describing the inclined plane and its ability to make work easier when moving books up a ramp and explain why after their discussion.

- Each unit in the Student Journal has an investigation section that requires students to explain or describe statements/questions in detail. For example, the unit on safety has students observe an image of students in a lab setting who are doing something dangerous. Students complete a table of what is being done wrong. The instructor shows the class TEA's safety standards and discusses how to keep an area safe. Students receive a list of good classroom practices and complete a second table to describe why each statement should be taken seriously.

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

- In the STEAM Art Project, the instructor scaffolds the project by asking students questions to access prior knowledge. Afterward, the instructor is prompted to ask students if they know what happens during plate movement and what tectonic plates are. The activity also provides the instructor with guidance to support ELL students and RTI students.
- Under the Preface section in the STEAM Activity Guide- Teacher Edition, instructors are provided guidance on how to scaffold for students in special populations. The student textbook has questions for the investigation, and the teacher textbook has modified questions to ask students as well.
- A lesson in the *Teacher Textbook* has students comparing and contrasting different types of energy. Students learn about potential energy, kinetic energy, and friction by building and testing a simple model roller coaster. After being pre-taught key vocabulary, students do research on potential and kinetic energy in roller coasters. Students label sketches on how potential and kinetic energy change. Students then test their roller coaster and go on to explain about gravity and the part it plays in the ball traveling faster and slower.
- The Teacher Edition of the Learn By Doing STEAM Activity Reader Book provides guidance on how to scaffold students' development and use of scientific vocabulary with appendices that outlines each chapter. For example, Chapter 7 includes TEKS 10(ABC) with vocabulary that is aligned with the concept of Earth. Some of those terms include rock cycle, the structure of the earth, biosphere, hydrosphere, atmosphere, geosphere, inner core, outer core, mantle, crust, metamorphic, igneous, and sedimentary.
- The Teacher Edition of the Learn By Doing STEAM Activity Reader Book provides guidance for instructors that specifies what students can do with embedded vocabulary in each chapter. Students are provided with an opportunity to review the scientific words introduced in the chapter and then practice using them in activities or during discussions. For example, Chapter 3, Floating Balls and Sinkin Stories, has the vocabulary embedded in the text, and students are provided a table with all the vocabulary words in the final activity to highlight keywords they need to know to demonstrate mastery of the content.
- In the lesson plan titled Planning For Natural Disasters, the introduction tells the instructor to begin previewing keywords with students. The words and definitions are read aloud as a class, stopping after each term to solicit student knowledge. instructors should initiate a short class discussion to hear individually held misconceptions and provide input that will cause students to question their misconceptions.

TPS STEAM into Science Grade 6

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

- Chapter 5 in the STEAM Activity Guide - Teacher Edition has students debate about what is holding the water on the penny after they add water droplets to it.
- Chapter 24 in the STEAM Activity Guide - Teacher Edition prompts students to discuss and debate life requirements for living organisms. The instructor is provided guidance on how to prepare students to debate and discuss the life requirements that are present in the Aqua Jars.
- Materials in the *Teacher Textbook* provide instructors with questions to ask students. These questions are not for in-the-moment student discourse. Materials provide answers to the questions that are asked but do not give exemplar student answers.
- The Teacher Edition of the Learn By Doing STEAM Activity Reader Book provides guidance for instructors on how to prepare students to use evidence to construct written and verbal claims. Under the subsection “Comprehension Skills,” instructors encourage students to develop oral language through listening, speaking, discussing, and responding using newly acquired vocabulary. For example, in “The Koi Pond Mystery” chapter, students read and write answers to questions in Activity 1. They also respond to two prompts using information from the text to support their response. In Activity 2, teachers tell students to draw what they find and have them discuss whether they have seen prokaryotes or eukaryotes. Students explain in writing what the difference is between the upper and lower layer of pond water from the test tube.
- The Student Journal provides the instructor with guidance throughout each unit to support students in using evidence to construct written and verbal claims under the investigation section on lab safety. The instructor shows students the TEA safety standards in the classroom, lab, and field investigations. Students create a poster or graphic organizer to display and discuss safety rules.
- An activity in the *Teacher Textbook* has students create a poster of biotic factors in the ecosystem they researched. Students then critique their peers' findings. They are encouraged to use evidence, observations, logical reasoning, and testing to enable them to critique what they've learned effectively.

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

- The *Teacher Textbook* provides the instructor with information that could be used as guidance for students in the Background, Introduction, Teacher Tips, and Common Misconceptions sections. The summary section directs the instructor with questions to ask and has students explain their thoughts to resolve any misconceptions. There are little to no student examples of materials that provide exemplar responses as a guide for eliciting more student thinking or finding solutions.
- Chapter 2 in the STEAM Activity Guide - Teacher Edition has an investigation that calls for the instructor to ask students about their predictions and encourages students to explain their thinking.
- Chapter 1 in the Learn By Doing STEAM Activity Reader - Teacher Edition has students write a response to a prompt using evidence from the text in Activity 1. Students write a short paragraph describing what happened with the koi fish and how it was resolved for the school newspaper. Activity 4 has a class discussion on biological systems. Students examine a system and discuss the parts of the system, their interdependence on the system function, and how factors might impact the stability and change in the system.

TPS STEAM into Science Grade 6

Indicator 6.1

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

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

Meets | Score 2/2

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

Materials include a range of diagnostic, formative, and summative assessments 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 Chapter 1 assessment in the STEAM Activity Guide - Teacher Edition consists of objectives, a problem/task, and requirements for submission. The student assessment is graded based on a grading rubric.
- The STEAM Arts Project in STEAM Activity Guide - Student Edition has a project named “Kilimanjaro Rises Like Olympus.” Under the Collaboration Discussion and Assessment, the student is provided with questions to answer for the assessment.
- The Introduction of the Teacher Textbook has a section on the Assessment Guide that includes: Safety, Investigation & Reasoning lessons, Using Tools, Amelia Rose, Science Makers, Multiple Choice and Open Ended Questions, Performance Tasks, and Skills Assessments. It states that “This book includes...and sets out assessments using a variety of strategies: science makers, formal written tests, and reader activity book assessments, plus safety, investigation and reasoning content.”
- Chapter 3 In the Learn By Doing STEAM Activity Reader Book is titled “Floating Balls and Sinking Stones!” The activity provides two formative opportunities to assess student learning. In Activity 3, students calculate the density of mystery materials using the formula to solve for density. Students practice solving for density, volume, or mass by rearranging the formula.

- The Assessment Tools K-8 in the Online Library provides instructors with an assessment generator to provide a formal assessment for the students. Teachers select the TEKS, Scientific, and Engineering practice and have options to have multiple choice, open-ended, or both options.

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

- Chapter one in the STEAM Activity Guide - Teacher Edition provides the instructor with objectives that align with the task that students must complete for the assessment. The objectives in the chapter consist of calculating averages and identifying patterns in tables. The problem that the students are given is to assemble a mousetrap car and compare their initial data to their final data.
- The Kilimanjaro Rises Like Olympus Project in the STEAM Activity Guide - Student Edition gives students the standards for the project and the lesson's purpose.
- The Interactive Assessment Tool - Online Test and Quizzes provides questions for each student's expectations.
- The Learn By Doing STEAM Activity Reader Book - Teacher Edition has a section that provides instructors a way to assess students formally. Each question is aligned with the TEKS and assesses all student expectations.
- The Pacing Guide in the Online Library - Teacher Support section has a pacing plan with a day-to-day breakdown of each unit to be taught. After each unit, there is time for revision, assessment, and reteach of the concepts. This format allows instructors to assess all student expectations.

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

- The Assessment Tool in the Interactive Assessment Software Tool - Online Test and Quizzes is aligned to the TEKs that the instructor wants to assess the student on. The instructor has the choice to integrate Scientific Concepts, Science Of Engineering Practice, recurring themes, and concepts to assess.
- The Online Library has an interactive assessment software tool that integrates Scientific Concepts as well as Scientific and Engineering Practices. Instructors can use the online tests and quizzes to assess students on the different TEKS that are being covered up to one hundred attempts.
- The Online Library - Teacher Support has a section that includes an assessment matrix that includes each unit and its TEKS. Instructors add their students' names to include notes and scores to the concept. Instructors can further track students' understanding of the recurring themes and concepts.

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

- Chapter 1 in the STEAM Activity Guide - Teacher Edition provides instructors with objectives that align with the problem/task that the student must complete for the assessment. For example, the problem that the students are given is to assemble a mousetrap car and compare their initial data to their final data. The task for students is a continuation of the Chapter 1 activities in the Applying the Idea section.

TPS STEAM into Science Grade 6

- The Student Journal has a section in each unit where students test themselves on their knowledge and skills/vocabulary. For example, in the second unit on lab equipment, students test themselves on the tools utilized in labs and the introduction of the periodic table.
- The Student Journal has a Math and Literacy Challenge where students connect the concepts that are being taught. They can be assessed through the use of knowledge and skills and make a connection with other subjects. For example, Unit 1 has students select three tools and draw or label each with a description of each object. Students explain how and why the material of each object was selected and how it makes it work well.

TPS STEAM into Science Grade 6

Indicator 6.2

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

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

Meets | Score 2/2

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

Materials include information and/or resources that provide guidance for evaluating student responses. 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. Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension. Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.

Evidence includes but is not limited to:

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

- The assessment at the end of Chapter 2 In the STEAM Activity Guide - Teacher Edition provides the instructor notes on what to look for when grading and elaborates on how to grade the task that the students solve.
- In the Blackline Master K-8, benchmark tests are broken down by the TEKS level. Assessments range from Level One questions up to Level Three. Instructors have the opportunity to leverage different activities based on the assessment to respond to student data. The assessment provides the instructor with the correct answer for multiple-choice questions.
- The appendices in the Learn By Doing STEAM Activity Reader Book provide instructors with an essential content guide to evaluate students' responses by aligning the TEKS, concepts, and vocabulary in student responses.
- In Learn By Doing STEAM Activity Reader Book - Teacher Edition, instructors are provided with guidance for questions that can be used in any way for each lesson at the end of the resource material. TEKS and answers can help guide student responses.
- The Teacher Textbook provides instructors with a support section. The Test Yourself section is used to evaluate student mastery. It includes multiple-choice questions, and the correct answer choice is checked for the teacher's knowledge. The What Have You Learned section includes a four-square quadrant, stating, "In each of the quadrants below, write down some characteristics

of each one of the vocabulary words you recently learned. Add a picture to help you remember the meaning of the term." The teacher's guide includes the phrase "student answers will vary." Throughout the materials, activities and worksheets include possible student answers.

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

- The assessment in Chapter 2 of the STEAM Activity Guide - Teacher Edition provides the instructor notes so that they can modify the grading rubric based on the needs and levels of the students.
- The Beginning Of Strand in the Teacher Textbook directs the instructor on how to proceed with responding to individual students' needs.
- The Teacher Support section in the Online Library has a Learn By Doing Assessment Rubric that is an Excel spreadsheet with guidance on the TEKS and detailed content. The assessment asks questions about the concepts and then guides instructors with information on how to monitor proficiency levels and use student responses in lessons.
- The STEAM Science section in the Online Library provides activity guides for different topics that instructors can use for students who have demonstrated mastery, have not demonstrated mastery, and special education students. Activities are personalized and assessed based on student journaling. Students that demonstrate mastery work on this as a project and still be assessed formally. For example, in the Plant Investigation section, students carry out an investigation into the conditions that affect plant growth and record their findings.

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

- In the STEAM Arts Project section of the STEAM Activity Guide Edition, the instructor is provided guidance on how to support RTI students and additional extension activities as students complete the Sled Dogs project.
- The Teacher Textbook uses Beginning of a Strand that directs instructors to determine students' initial understanding using the assessment database. Afterward, the materials direct the instructor to determine the best possible strategy to address student needs.
- The Teacher Support of the Online Library has a video titled "How to use the [platform] assessment generator tool." The tool assists instructors when planning instruction, intervention, and extension lessons. For example, instructors create assessments by TEKS or skill level. The assessments can be utilized as a review or reteach and can be set as multiple choice, open-ended, set at above, below, or at grade level.
- The Online Library - Teacher Support section has a Learn By Doing Assessment Rubric that provides instructors with the TEKS, locations of the materials within the resources, specific and general assessment questions, and steps on how to evaluate student levels. For example, instructors can find recurring themes for TEKS 5A under Activities 1 through 3 in Chapters 1 and 2.

TPS STEAM into Science Grade 6

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

- In the Blackline Master K-8, benchmark tests are broken down by the TEKS level. Assessments range from Level One questions up to Level Three. Instructors have the opportunity to leverage different activities based on the assessment to respond to student data. The assessment provides the instructor with the correct answer for multiple-choice questions.
- The Teacher Textbook provides a variety of student resources such as STEAM arts projects, Focus Tutorials, and Reader books. The instructor uses a diagram that is mentioned so they can choose the resource to best support student mastery level. Some of the situations these activities can be used for are: knows but does not understand and additional individual help.
- The Teacher Support section in the Online Library has a section titled “Blackline Master for K-8.” It provides benchmark tests with an outline for each question and answer that assists instructors in responding to individual student data. These exams are formative and can be utilized throughout the school year. Level One is for students showing a lower level of mastery, Level Two is for students on grade level, and Level Three is for students demonstrating mastery.
- The K-8 Critical Thinking section in the Online Library provides students with practice in answering questions and building literacy skills in science. Instructors use them as reviews for assessments (diagnostic, formative, unit test), homework, or to be done at the beginning of class. The book is designed to help the instructor assess the students’ progress on an ongoing basis and use it as a response to other data.

TPS STEAM into Science Grade 6

Indicator 6.3

Assessments are clear and easy to understand.

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

Partial Meets | Score 1/2

The 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 sometimes use clear pictures and graphics that are developmentally appropriate. Materials provide guidance to ensure consistent and accurate administration of assessment tools. Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals.

Evidence includes but is not limited to:

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

- Each assessment in the STEAM Activity Guide - Teacher Edition contains items that are scientifically accurate, avoid bias, and are free from errors. In Chapter 2, the assessment uses objects in the scenario that are familiar to all students, such as the PTA, playground equipment, and a playground slide.
- Each chapter in the Learn By Doing STEAM Activity Reader Book - Teacher Edition contains items that are scientifically accurate, avoid bias, and are free from errors. Chapter 1 is titled “Koi Pond Mystery.” The text includes children of diverse background learning together. The text aligns with the TEKS and includes key vocabulary emphasized in bold. The activities and the questions that fall under reading comprehension are aligned to the scientific process of learning.
- The STEAM Science/ELA/Math, PSHE section in the Online Library contains plenty of evidence that is scientifically accurate, avoids bias, and is free from errors. For example, the NEST family videos are of diverse topics and are aligned to the TEKS that are being taught per grade level.
- The Assessment Generator provides instructors and students with TEKS-aligned assessments. Materials correctly state under the organisms and environments questions that both plants compete for biotic factors.

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

- The assessment in Chapter 2 of the STEAM Activity Guide - Teacher Edition contains graphics such as the grading rubric but does not contain any pictures. The grading rubric graphic is

developmentally appropriate for students to understand the criteria for the grading process. Test questions in the Assessment Generator provide students with developmentally appropriate images on four occasions (out of the 212 test questions) for grade six. Grades seven and eight test questions are similar to grade 6.

- Assessment tools in the K-8 Online Library do not contain pictures/images. Referred material by the publisher in the Teacher Textbook is not used as or for an assessment. Questions in the Learn By Doing STEAM Activity Reader Book provide formative and informative assessment questions. The Test Yourself section does not include any graphics in the Teacher or Student Edition. The indicator uses the terms pictures and graphics in the plural form. Test questions in the Assessment Generator provide students with developmentally appropriate images on four occasions (out of the 212 test questions) for grade six. Grades seven and eight test questions are similar to grade six.
- Each chapter in the Learn By Doing STEAM Activity Reader Book - Teacher Edition has pictures that are clear and easily understood by the learner. Each image is aligned to the TEKS/concepts that are being presented in the chapter so that the learner is able to make a clear connection. For example, Chapter 1, “Mystery of the Koi Pond,” has images aligned to the text. The images are clear so that the students can understand the meaning of each term and understand the text. Images in The Learn By Doing STEAM Activity Reader Book have questions that include images on five pages.
- Materials in the Intervention Focus Tool include a graphic organizer on the life cycle of stars. The Learn By Doing STEAM Activity Reader Book - Student Edition provides questions that be used formally and informally by the instructor.

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

- Chapter 2 in the STEAM Activity Guide - Teacher Edition contains instructor assessment notes that provide guidance to ensure the accurate administration of assessment tools. The instructor is also given guidance in the assessment overview at the beginning of the chapter for materials to provide to the student in order for them to accurately administer the assessment.
- The materials include a distinct section in the Teacher’s Program Guide that supports the teacher in understanding the types of informal assessment tools in the curriculum. Teachers are provided with an assessment matrix to show which assessments are utilized throughout the course. They provide a place to add results from any tests they design from the interactive software tool, assessment generator, or any informal assessment from the materials.
- The Online Library has a Teacher Support section that has “How to Videos” on how to use the assessment generator tool, how to store information, and reuse questions. The videos provide guidance on how to create assessments by TEKS, skill level, and how to personalize.
- The Learn By Doing STEAM Activity Reader Book - Teacher Edition provides instructors with guidance to ensure consistent and accurate administration of assessment tools using the essential content guide. Each chapter is correlated with the TEKS that follow the lesson.
- The assessment generator creates an overview of the created assessment. Instructors can press on the show/hide answer button to see sample student answers and how to score open-ended responses.

TPS STEAM into Science Grade 6

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

- The Sled Dogs Project in the STEAM Art Project section of the STEAM Activity Guide - Student Edition provides the instructor guidance on how to support RTI students with accommodations for assessments.
- Art Projects and Literacy Connections provide alternative assessments for students that access mastery non-traditionally. Students use what they've learned and are accessed through discussion and debriefing instead of true/false questions, multiple choice, or open-ended questions.
- The materials offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. There is also guidance on how to add alternate text for images. For example, when using the Online Assessment Generator, teachers can create assessments with above, below, or at-grade-level questions and reduce the length of the exam with fewer questions to ensure assessment alignment to meet the needs of all students.
- The Assessment Tools K-8 Science in the Online Library has Intervention Focus Tutorials for each grade level. They outline each TEK with vocabulary to review and performance tasks to complete.
- The STEAM Science/ELA/Math/PSHE in the Online Library - STEAM contains activity guides that teachers can assign kits to students who need assistance in improving their literacy and numeracy skills, and the teachers can utilize it as an alternate assessment.

TPS STEAM into Science Grade 6

Indicator 7.1

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- In the STEAM Activity Guide, in the Preface under the IMaST Learning Cycle section, there is a framework in which students learn content. The steps began with exploring, getting the idea, applying the idea, and expanding the idea.
- Chapter 1 in the STEAM Activity Guide - Teacher Edition is titled “Need For Speed.” In the Exploring The Idea section, the teacher scaffolds by asking probing questions and guiding students to problem solve rather than giving them the answer when they do not understand.
- The Focus Tutorial in the Online Teacher Textbook says that it is “recommended for use for students who really struggle with traditional textbook learning, either due to low English language skills or other special education needs. It can also be useful to students with gaps in learning who are At Grade level.” The summary steps provide the instructor with a step-by-step process on how to use STEAM Guide.
- In the Learn By Doing STEAM Activity Reader Book Teacher Edition, each activity starts with the teacher asking the students to restate the instructions to check for understanding. For example, in Chapter 1, “The Koi Pond Mystery,” students participate in an activity using microscopes. The instructor works with students who struggle to focus on the slide. The teacher adjusts, and students draw a sketch of what they see. At the end of each chapter, students review key vocabulary terms before moving on.
- In Learn By Doing STEAM Activity Reader Book Student Edition, each chapter reading contains sentences in bold that rephrases or provides extra examples or defines the concepts. For Chapter 2, “Kitchen Chemistry,” the text can be found.
- The Online Library-Assessment Generator states that “If students answer partially incorrect or wholly correct, use assessment materials in the guide and review science content. You can also

choose an Action Based Curriculum arts project in the Online Library that covers the TEKS failed to reteach the science."

Materials provide enrichment activities for all levels of learners.

- In the Online Teacher Support- Family and Caregiver Guide, in the Family Visit section, it stated that the student textbook contains an At Home section where students are to visit different state locations with their family as well as content that is completed at home with the help of parents/caregivers.
- In Chapter 4, "Solar, Wind, Geothermal…Capturing Energy," the Learn By Doing STEAM Activity Reader Book Teacher Edition provides multiple enrichment activity opportunities for all levels of learners. Activity 1 is an ELAR extension that requires students to read the story and answer questions. In Activity 2, students create a food web to show how energy is transformed and conserved. In Activity 3, students research why resource management is important and how conservation increases efficiency, and how technology can help manage air, water, soil, and energy resources.
- In the Online Library - STEAM: Real Science Middle School Student Edition, there are different enrichment lessons for students to apply their knowledge and skills of each concept through the EDP. For example, the objective of "Wheeling Around" says that students will develop a model to describe that when the position of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
- During the TRY IT stage, students design and create a model using the materials available in the classroom. During the DISCUSS IT stage, students make predictions and describe the energy of each part of the car. In the second TRY IT stage, students test out their car. In the APPLY IT stage, students race their car with other groups or individual students. Lastly, in the EXPAND IT stage, students brainstorm ideas on how to make their car better and also research online methods to increase the mileage of the car.
- The Teacher Textbook provides multiple enrichment and extension activities that can be used by all learners, no matter the level. English Language Learner (ELL) or emergent bilinguals (EBs) students can create dual language glossary cards for key concepts and vocabulary words. Students can find an internet report or newspaper and create a table of the sources to check their validity.

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

- An alternative Scope and Sequence for RTI students, along with the TEKS that align with the activities, is provided in the Online Library - Teacher Support Section.
- In the Teacher Program Guide K- 8, under the Support Needs For Teachers, bullet three discusses how the goal of the program is for students to master all TEKS. If students are having a difficult time with concepts, it gives teachers guidance on how to address the students' needs. If students master the TEKS, guidance is also given on how to allow the student to progress and what level of questions to give the student on assessments.
- Students are provided with guidance for just-in-time learning acceleration that can be found in the online learning student reasoning library. There are four scientific investigations and reasoning in the book. For example, the first investigation is on Working Safely and Responsibly, which provides a passage followed by keywords that the student should be aware of and identify within the reading. Focus questions are included, and an investigation section where students design a poster to explain one way that a student can work safely and responsibly in

the classroom. The investigation has a section on What Was Learned with questions and a section to evaluate their learning.

- Acceleration of learning works best when scaffolding builds on what students already know, so when students tie background knowledge to new information, they are better at making inferences and are better at remembering the new information more effectively. Therefore, the publisher provides, through online library resources, a crosscutting library with photographs in case students are researching and working on a project. They can use this to grab real images through Google.

TPS STEAM into Science Grade 6

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 2/4

The materials partially meet the criteria for this indicator. Materials include some 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 support some multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation. Materials represent a diversity of communities in the images and information about people and places.

Evidence includes but is not limited to:

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

- The IMaST Learning Cycle Section in the STEAM Activity Guide - Teacher Edition provides an overview of Exploring, Getting The Idea, Applying The Idea, and Expanding The Idea sections. When students explore, the instructor acts as the facilitator. They provide students with opportunities to test materials, manipulate objects, make observations, and collect data. During the Getting The Idea section, students engage in discussions about their findings and experiences during the Exploring. The instructor addresses misconceptions in the learning and questions students.
- In the STEAM Activity Guide Teacher Edition, each lesson provides the instructor with an introduction to the lesson and the lesson objectives. In Chapter 1, the introduction provides the instructor with a snippet of what students will be doing in each section of the learning cycle and how to facilitate student learning.
- The Online Teacher Textbook gives an overview of all the steps that can be taken by the instructor for a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. The suggested steps provided by the text are listed sequentially as follows: Learn by Doing Activity Reader, Student Textbook (which has a variety of

different instructional approaches), the STEAM Guide for STEM and Art projects, and an assessment.

- The scope and sequence outlines each unit with the student learning objective and the key concept that is TEKS aligned. For example, Unit 2, Matter and Energy, states that the student knows that matter is made of atoms, can be classified according to its properties, and can undergo changes. The aligned TEKS (6ABCDE) are referenced again in other lessons, such as Kitchen Chemistry in the STEAM Activity Reader Book, Chemical Reactions in the Teacher textbook, and Getting to Know H_2O in the STEAM Activity Guide Teacher Edition.
- Each chapter in the Learn By Doing STEAM Activity Reader Book provides a variety of instructional approaches to engage students in the mastery of the content. For example, Chapter 2, Kitchen Chemistry, has a reading section with background information where key vocabulary and chemical properties are introduced. Activity 1 is a reading comprehension with questions. Activity 2 has students identify physical and chemical changes. Activity 3 allows for experimentation through observing chemical reactions and documenting data. Activities 4 through 8 are aligned to the periodic table and provide students with practice in identifying the properties of elements.
- Section 2 of the Scientific Investigation and Reasoning starts with students reading “The Science” followed by four focus questions. Students then plan an investigation that they can do at home. They share their investigation with other students via video, photos, or other ways of sharing.

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

- In the STEAM Activity Guide Teacher Edition, in the Challenge Off To The Races, the instructor is given guidance on putting students into groups of three or four. Students have the choice of forming their own groups, being randomly paired, or choosing a partner and then being paired with another group. In Chapter 1, “Need For Speed,” the teacher is given guidance on putting the student into groups based on ability level or making diverse groups with different ability levels.
- In the Teaching Pedagogy- Storytelling and STEAM section of the Family and Caregiver Guide K-8, it states that the stories could be read in groups with the teacher or in the home with the caregiver. This option gives the instructor flexibility in student grouping options.
- The materials in the Teacher Textbook give many opportunities for flexible groupings. In this resource, the instructor is guided to group students into seven similar-sized groups. In a lesson on scientists, the instructor is directed to divide students into pairs or small groups. Elsewhere, the text states, “divide students into similar sized small groups, and ensure there are mixed skill levels in each group if you have a diverse group of students.”
- The Student Textbook has students discuss the periodic table after reading the provided story. This activity is followed by a small group activity and then an individual activity.
- The Learn By Doing STEAM Activity Reader Book - Teacher Edition provides activities that support flexible grouping. For example, students explore Newton's Laws Of Motion using the EDP to create a balloon rocket. Students build their own balloon rockets, and the instructor creates rocket launchers. Students work in groups to launch their own rockets and collect data about their own launch and others.
- The Online Library-Interactive Assessment Software tool allows teachers to create assessments that are TEKS aligned and assist instructors with providing extra support to individual students who are struggling with mastering the content. Instructors can create questions to be assigned

to the whole group as a class test to assess content. For example, if an instructor wants to focus on the following TEKS 10B for grade 6, the ID# is 11609.

- Students read "The Science" article and answer four focus questions on their own. The lesson plan states that students that are struggling with reading can work with a partner or one-on-one with an instructor. In a small group, students observe the states of matter and put Nerds candies inside a bottle of soda, which becomes inflated with air due to the reaction. The post-investigation questions are made to have whole group discussions to stamp student understanding

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

- Chapter 2 In the STEAM Activity Guide- Teacher Edition, Chapter 2 states that students are able to work independently to gather information prior to their investigation for their data table to complete object descriptions. Students can also work collaboratively during the investigations during the Exploring the Idea section to gather data for five different types of wheels. The teacher is also able to guide learning by asking open-ended questions.
- Materials partially support modeling. The indicator refers to modeling as the instructor showing students what they should be doing and how. The provided evidence from the publisher does not align with TEA expectations of modeling. Publisher refers to making models of scientific phenomenon compared to showing students how to solve a specific problem (such as calculating speed). The Teacher Textbook states that the instructor may choose to demonstrate malleability. Opportunities for teachers to model a skill are not explicitly stated on a consistent basis. For instance, the Teacher Textbook contains opportunities for collaboration, such as helping students decide on questions that can be answered using an experimental investigation.
- The Math Link section models how to work the problem, and then the student has a Try It opportunity. In this resource, it says, "Your instructor will demonstrate how to use the conductivity meter."
- Each chapter In Learn By Doing STEAM Activity Reader Book provides a variety of instructional approaches to engage students in the mastery of the content. For example, Chapter 2, Kitchen Chemistry, has students practice reading comprehension independently in Activity 1. The materials support guided practice by telling the instructor to allow students to observe pictures and require the instructor to explain what the ingredient is in detail that is being experimented on. It supports collaborative practice by allowing students to work in small groups on an experiment and discuss results. It supports modeling practice as instructors model changes in matter. This chapter also supports instructor guidance as it requires the instructor to ask students to restate instructions to check for understanding.
- The Teacher Textbook has students work together collaboratively by drawing an ecosystem with their group. They then go around to other groups and add things they think other students are missing from their image. They then identify the abiotic and biotic factors. Instructors model how the equipment works to measure soil parameters.

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

- In the STEAM Activity Guide - Student Edition, diversity is shown in the images in the textbook based on race and gender. The textbook includes images of both men and women and people of different ethnic backgrounds.

TPS STEAM into Science Grade 6

- In the STEAM Activity Guide- Student Edition, the images represent a diversity of places, such as the Space Station, an igloo in a cold climate area, and an oil plant on the water.
- In Learn By Doing STEAM Activity Reader Book - Teacher Edition, there are multiple images that represent a diversity of communities. For example, Chapter 1, School Garden, presents an image that represents children and teachers of diverse backgrounds working together to make a koi pond function. Chapter 2, Kitchen Chemistry, presents students of diverse backgrounds working together to fry an egg. Chapter 3, Floating Balls and Sinking Stones, presents a diversity of age groups, from a grandmother and her grandson to a mother and daughter who are interacting with nature.
- In the Online Library-Crosscutting Library Photographs, there are numerous locations of images of different concepts that are aligned to the TEKS and show a diversity of communities. For example, the photographs of animals in the water. There are several images of animals found in different ecosystems.
- The materials demonstrate ample amounts of diversity. The STEAM Activity Reader Book has diversity on the cover of the book, and each chapter shows images of a diverse learning community. The Student Textbook also shows diversity if looked at holistically rather than individual sections.

TPS STEAM into Science Grade 6

Indicator 7.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Under the Problem Solving section in the STEAM Activity Guide- Teacher Edition, it states that the last step of the problem-solving process is communicating. The communication step focuses on analyzing results and sharing results with others, both written and oral. In Challenge Off To The Races, students are to respond orally and record their ideas on butcher paper.
- On three occasions, the ESL connection in the Teacher Textbook provides the instructor with lesson adaptations such as making a blueprint illustrating their design or grouping students still learning English with above-grade-level readers.
- The ELPS spreadsheet contains Cross-curricular second language acquisition/learning strategies, expectations, audience, type, material component, page number, URL, and description of location.
- The Learn By Doing STEAM Activity Reader Book - Teacher Edition includes guidance for instructors on linguistic accommodations. Under the subtopic titled "Comprehension Skills," instructors encourage students to develop oral language through listening, speaking, and discussion and to respond with newly acquired vocabulary as appropriate. For example, Chapter 1, Koi Pond Mystery, has an activity where students read the chapter and write their response to each question. Activity 2 has students listen to the steps given by the instructor on preparing a slide to observe a drop of pond water under the microscope. Students listen to the instructor, and after observing the pond scum, they are asked if there is a difference between the upper and lower layer of pond water. Students speak by explaining that the pond is a complex ecosystem, and different habitats exist depending on the depth of the water.

- The Online Learning Teacher Support has a resource titled “Archway Literacy and Phonics Program” that will assist emergent bilingual (EB) students with meanings, grade-level science content, and expectations. It is a reference guide used with the Archway cards with information to help with the English language. For example, Set 1 is titled Red Cards. They help students with sounds to say when a student reads the letter. It explains when to use a small mirror to help with seeing the movement of the mouth, reminds students when to read words, and provides a list of words to practice with.
- In the learning strategies and scaffolding section of the Teacher Textbook, the instructor uses the analogy of a candy bar to help students understand the relationship between rocks and minerals. Students explain why fossils are found in sedimentary rocks.

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

- The Adaptations for Special Populations in the STEAM Activity Guide - Teacher Edition states that the English Language Learner (ELL) or EB student might struggle with reading the material. The publisher provides programs such as Archway to assist students in building basic and academic vocabulary and skills.
- Under the Intervention Focus Tutorials In the Online Teacher Support, EBs are provided with a web-based intervention tool that covers content for each grade level.
- The Teacher Textbook and the Student Textbook both provide multiple strategies to engage EBs. For example, in the ELL section of the Making Informed Decisions lesson plan in the Teacher Textbook, it says to provide students with time to convert their research findings into their first language. Students use translated keywords (available in Spanish) and create their own first-language keyword review cards. EB students are also provided with the “Archway Literacy and Phonics Program” to assist with vocabulary and grade-level concepts.

TPS STEAM into Science Grade 6

Indicator 7.4

Materials provide guidance on fostering connections between home and school.

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

Meets | Score 2/2

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

Materials provide information to be shared with students and caregivers about the design of the program. Materials provide information to be shared with caregivers for how they can help reinforce student learning and development. Materials include information to guide teacher communications with caregivers.

Evidence includes but is not limited to:

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

- The Family and Caregiver Guide gives an overview of the program, which includes research-based strategies, family support, and a breakdown of each of the program components.
- The Family and Caregiver Guide has a link in the online materials, and the page in the Teacher Textbook has a guide with the following sections: Program Introduction, Program Components, TEKS, ELPS, Explanation of TEA/SBOE process and [program] approach, Texas Resource Review requirements, Navigation Guide - Online Resource, Information about [program], Progress Monitoring, Family Visits and Teaching Pedagogy - Storytelling and STEAM. Materials provide a glossary that is available digitally and about the “At Home” activities provided in the Student Textbook.
- The Conservation In The Classroom section of the Learn By Doing STEAM Activity Reader Book has students recycle and pick up trash once a month outside the classroom setting. Students work on a conservation activity twice a month at home. Examples of the activities include turning off lights, four-minute showers, and reusing plastic containers.
- The Student Journal has students work on an investigation titled “How much is too much?” Students keep a diary of water use in their home for three days, fill out a table with specific usage of water, and talk to family members to help so they can record when a student is not home.

TPS STEAM into Science Grade 6

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

- In the Teacher Textbook, a lesson called “Naming That Tool” provides activities after the investigation for students to do at home. Caregivers are provided with the following prompts to ask their students: “Ask your child to describe different tools that you have at home from this grade's list of tools; ask your child to name the tool and tell you how it is used in science lessons.”
- Family and Caregiver program guide for grades K-8 can be found in the Online Library. The program guide breaks it down to include program introduction, program components, TEKS for grades K-8, and key terms to review at home for each grade level. There is a section called family visits where families can visit and explore places throughout Texas. Families are to discuss thoughts and views about the content as well as carry conversations about different topics such as How to take care of your health, taking care of pets, and ways to recycle.
- Materials provide resources and strategies for caregivers to help reinforce student learning and development. The NEST Family Videos provides several videos and workbooks to help support them in gaining content knowledge to support their students. Each workbook is provided with a Parent and Teacher guide that has activities and coloring pages that students can complete at home with their parents.

Materials include information to guide teacher communications with caregivers.

- Materials include teacher guidance resources for communicating with caregivers. For example, the Program Guide includes information on engaging caregivers as partners in learning and offers suggestions for establishing a relationship, inviting ongoing communication and partnership, and sharing progress updates. It describes suggestions for ways family members can assist students in content mastery, such as “[The program] ask(s) family members to review all new terms and definitions with students at home and identify how they are useful in their daily lives.” Additionally, it shares the free online materials caregivers have access to. An example is “Digital family access costs nothing: [The program Publishing Inc provides parents digital access to families for all homework assignments and lists of keywords and definitions. [The program] can be booked to run workshops to assist parents and teachers, work together on safety standards and other areas such as literacy, where parents can help students master good practice and science, mathematics and literacy content."
- The Student Reasoning Library in the Scientific, Investigation, and Reasoning Handbook states that they offer a teacher/parent edition so that teachers and parents can work together with the students. Parents and teachers can support each other to help increase student achievement.
- The NEST Family Videos provide several videos and workbooks to help support teacher and parent communication. Each workbook is provided with a Parent and Teacher guide that has activities and coloring pages that students can complete at home with their parents.
- There is evidence of teacher guidance materials that include information on preparing for and facilitating different types of conferences with caregivers based on student needs (e.g., data-driven, student-led, virtual, in-person). Evidence is clear for home visits.
- There is evidence of templates for caregivers to communicate concerns or insights regarding a student’s level of understanding, such as forms attached to at-home practice activities, space for input on progress reports, or a message box in the online platform. Teachers can share a progress monitoring page that breaks down student grading by assessment (benchmarks, focus

questions, and performance tasks) from the Family and Caregivers Guide. The Learn By Doing STEAM Activity Reader Book provides a guide for caregivers to assist in engaging students to read at home and provides the opportunity for there to be open communication between the teacher and caregiver.

TPS STEAM into Science Grade 6

Indicator 8.1

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

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

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- There is a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught. The scope and sequence is organized by unit and with a description of the time to spend on teaching each unit.
- The scope and sequence is represented in a table format that lists the units with the TEKS strands and the page number. A calendar view is also available that shows the breakdown of units daily. There is evidence of in-depth explanations of the TEKS and how they can be further implemented alongside the ELPS.
- An alternate RTI scope and sequence is provided and aligned with the STEAM Storybooks and other instructor-facing materials.

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

- The *Teacher Textbook* includes lesson plans that provide clear teacher guidance for facilitating activities. There are outlines and descriptions of activities with student action steps. Depth Of Knowledge questions are provided for instructors that accompany the activities. The teacher section outlines training and additional support for the instructor throughout the year.
- In the Learn By Doing STEAM Activity, there is a Design Engineering Process that gives an overview and shows a visual of the design process. There are multiple pieces of evidence of the design process throughout the units.

- In the Reader Book grade six, the activity on pond water gives the objective and the step-by-step process of the activity using the Design Engineering Process. The students' observation allows them to make connections between scientific reasoning and practice. However, there is a lack of clarity throughout the other materials regarding bringing back specific themes and concepts. The materials do not provide teacher clarity in understanding how activities and experiences connect concepts and RTCs. The TEKS content guide lists the content TEKS-aligned lesson in each component, but not SEPs or RTCs. For example, Student Textbook - Grade 6 Science has students practice TEKS 6ABCD, 7C.

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

- The scope and sequence outlines opportunities for reteaching but does not show evidence of skills spiraling throughout the year. Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention in the TEKS 1–5 Content Guide. During Expectation 1B, students learn about TEK 8A through Energy Transformations. Energy Transformations are covered again in 1D, 1F, and 2D.
- There is evidence of spiraling for lab safety and practicing appropriate use of laboratory resources.
- Connections with ELAR content are provided in the introduction with the listed TEKS, but there is no evidence of repetition or spiraling of content-specific TEKS throughout the scope and sequence. The TEKS 1–5 Content Guide and amended Scope And Sequence provide details on how TEKS are spiraled. The assessment generator examines student mastery of the TEK. The materials do not include intentional practice and spiraling of previously taught knowledge and skills from earlier lessons/grade levels and the current lesson’s science knowledge and skills. The materials do not come with a reteach plan or ideas for students that have not mastered them. It also suggests that “teachers will likely find that the majority of students have mastered the content,” which assumes the content does not need to be retaught or reviewed.

TPS STEAM into Science Grade 6

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.	PM
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

Partial Meets | Score 1/2

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

Materials provide teacher guidance and recommendations for the use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning. Materials include some 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 some 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 Teacher Edition includes guidance and recommendations for phenomenon-based learning, embedded technology, background information, and lesson extensions to support and enhance student learning. Instructors also have access to a support line via phone and email for additional support and questions regarding the materials.
- Located in the *Teacher Textbook,* instructors have access to the Beginning Of Strand document. The document guides instructors on how to scaffold assignments to support the needs of students. This guidance includes students with disabilities, advanced learners, and emerging bilinguals. The instructional strategies and scaffolds are research-based.
- The Online Teacher Library includes scaffolds for topics that are TEKS based. They build upon past learning experiences in prior grade levels.

TPS STEAM into Science Grade 6

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

- The Teacher Edition of Learning By Doing gives students the ability to practice ELA-based skills such as comprehension of increasingly complex text and development of oral language through listening and speaking in text-based discussions. Students also practice analyzing data, which uses grade-level math concepts. This indicates clear and intentional use of applying cross-content standards.
- The Online Library provides lessons and projects that require student research. Students will experience phenomenon-based learning with real-world scenarios that provide multiple opportunities to use technology, engineering, art, and math skills. The reading and math skills are partially integrated into assignments and do not always provide explanations for the instructor on how to model these skills.
- The RTI scope and sequence includes science and engineering practices, recurring themes and concepts listed alongside the content standards. The chapters are TEKS aligned with summaries of horizontal and vertical alignment. The chapters are TEKS aligned with summaries of horizontal and vertical alignment. The Teacher Textbook and the STEAM Activity Reader provide a clear model for the instructor and students on how to solve a math problem. The K-5 TPS Activity Reader Book is disregarded due to this being a review of 6–8 materials.

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

- In the *Teacher Textbook,* instructors have access to a comprehensive list of materials students need for activities and investigations.
- The Teacher Edition of Learn by Doing STEAM activities: grade six begins with a phenomenon that requires students to use scientific equipment and supplies to connect prior knowledge with a new concept.
- The Real Science Middle School Edition provides students with opportunities to apply their knowledge of Science concepts in different activities using a variety of materials. There are activities available for TEKS-aligned concepts.
- The RTI scope and sequence includes a materials list for each activity that is considered hands-on or a lab experience. There are links in the online library that include how to refill material kits.

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

- The investigation section of the *Teacher Textbook* requires the instructor to ensure safety standards are being followed when working with chemicals, equipment, and in the environment in which the investigation will take place. The safety standards must be aligned with local standards as well as the TEAs' safety standards.
- In the *Teacher Textbook*, the laboratory safety section outlines how to create safety assessment plans with students that states instructors should do this prior to each investigation. Specific TEA, local safety standards, or assessment guidelines are not consistently represented prior to each hands-on learning experience.

- The Scientific Method lesson in the Learn By Doing workbook includes some safety tips for hands-on learning as well as general safety. Instructors are provided with checklists for general safety practices and usage of safety equipment.

TPS STEAM into Science Grade 6

Indicator 8.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The *Teacher Textbook* provides a detailed scope and sequence with time stamps for the entire unit. In addition, lesson plans list time stamps for the daily lesson. The average lesson time ranges from twenty to fifty minutes.
- Instructors have access to a pacing plan that extends throughout the year. In addition to this pacing plan, there is an RTI-based scope and sequence with time stamps throughout the activity.

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

- The *Teacher Textbook* includes an overview of content and skills that will be introduced to students. Scientific concepts, scientific and engineering practices, and building background knowledge provide students with guided inquiries during investigations. These investigations include, but are not limited to, STEM projects and other forms of assessment. In the *Teacher Textbook,* there are lesson plans in place to implement the sequences of the content.
- The content guide for the grade level provides the chapter with corresponding TEKS. The chapters follow a developmental progression, building student content knowledge that follows the scope and sequence.
- The RTI scope and sequence provides specific details on the duration of the units, lesson, content pacing, and sequential chapters. All materials are TEKS-aligned.
- Instructors have access to a flow chart that aids in accessing students' prior knowledge and best practices for the implementation to address gaps in student knowledge. Instructors are also provided with concise, student-friendly objectives and outlines of tasks that can be leveraged to fill in those gaps.

TPS STEAM into Science Grade 6

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

- The *Teacher Textbook* provides an instructional calendar that outlines the TEKS and skills addressed in each unit. The projected time to cover all instructional material is one hundred and fifty days.
- The pacing plan provides instructors two weeks of flex days for assessments and reteach options. The RTI lesson plans allow flexibility for reteaching with the instructor choosing which activity aligns best with student needs.

TPS STEAM into Science Grade 6

Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Chapter 5 in the STEAM Activity Guide- Student Edition provides students with an appropriate amount of white space. The chapter is designed in a way that uses titles for each section and has graphics to support key concepts.
- Each chapter in the Learn By Doing STEAM Activity Reader - Student Edition has bolded keywords that stand out so that students know the term is important. Activities have space for students to write their responses to questions and graph their responses if needed.
- The Student Journal provides students with plenty of white space to respond to fill-in-the-blank questions and space to create projects based on the questions. For example, in Unit 1 on lab safety, students complete several tables through different investigations. They are provided with space to create a crossword with questions and answers as well as space to respond to math and literacy challenges.

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

- Chapter 5 in the STEAM Activity Guide - Student Edition provides graphics that are used to enhance learning and engage the student without being visually distracting. If there is only one graphic, it is a larger image. If the graphic is smaller, there are multiple graphics.
- Each chapter in the Learn By Doing STEAM Activity Reader Book has short paragraphs separated by visuals. These visuals are either illustrations, real-life images, or sketches. For example, Chapter 1, The Koi Pond Mystery, has an illustration of a garden with a koi pond in the

background, an image of bacteria, an illustration of cells with labeled organelles, and side-by-side images of ticks.

Materials include digital components that are free of technical errors.

- In the Online Assessment Tools K- 8th Science- Assessment Generator, there are no evident technical errors.
- In the Online Library – STEAM (Science Library), there is no evidence of technical errors.
- The Online Library - NEST Family Videos section has interactive workbooks that students can complete at home and are TEKS-aligned.
- The Online Library - Scientist section provides information on different scientists and their accomplishments. The resources have fact sheets that students can use when researching that scientist.
- Provided links to other resources are fully functional.

TPS STEAM into Science Grade 6

Indicator 9.2

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

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

Not Scored

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

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

- The Teacher Program Guide in the Online Teacher Support Section outlines all of the digital components of the instructional materials. The guide also provides an overview of materials that can be accessed digitally.
- The STEAM Library in the Online Library has integrated digital technology that supports student learning and engagement, such as the NEST family videos and workbooks. Instructors also have access to the Alaska section in the online library, which provides videos and soundtracks for students to engage with as they learn.

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

- The Teacher Program Guide in the Online Teacher Support section states that the instructor and student will have access to a digital resource called Digital Frog. Students can complete online tours of various environments and collaborate with peers. Instructors and students can also collaborate through the digital software tool that is used for homework assignments.
- The Learn By Doing STEAM Activity Reader Book integrates digital technology to support student engagement while using science and engineering practices. The chapter titled: “Earth Tremor”

has students research rocks and minerals to gather information on igneous, sedimentary, and metamorphic rocks.
- The Student Journal integrates digital technology to support student engagement and learning. For example, students research any of the three systems (Amazon Rainforest, Earth's Oceans, or Earth's Atmosphere), then draw a poster, flow chart, or graphic organizer to describe how different factors or conditions affect the chosen system.
- The STEAM Activity Guide has a cyberspace connection where students research keywords such as journal, scientific predictions, etc.

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. The two pieces of evidence suggested in the rubric tool are for the students to use the internet for research. Doing research is not a collaboration. The Online Library - Interactive Assessment Software Tool is not a collaborative tool. The teacher assigns the assessment, and students take the assessment to demonstrate mastery of the content. Collaboration through assessments does not provide the instructor with accurate data on individual student mastery.
- Materials do not integrate digital technology that supports student-to-student collaboration. Materials do not provide a forum for students to post class discussion topics via written or video responses. Materials do not provide a video conferencing platform or encourage the use of existing platforms for student engagement in group projects and discussions. Materials do not provide interactive games and quizzes students can complete collaboratively in pairs or teams. Digital technology is available for collaboration between teachers and students, but it is not available for viewing on specified platforms.
- Materials do not integrate digital technology that supports teacher-to-student collaboration. Materials do not provide an online collaborative platform in which teachers and students can share educational materials, create collaborative spaces, post assignments, collaborate on projects, and give immediate feedback to students. Evidence of how technology is integrated within the Student Journal has students research topics and complete the activity in small groups. Topics include Ecosystems, Properties Of Materials, and Energy. Online library tools are provided, such as Alaska, where students can identify and discuss the animals and landforms, The Crosscutting library allows students to also link to Google Photos to view different images; NEST Family videos provide a workbook for students that is aligned to the provided videos.

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

- In the Online Teacher Support - Teacher Program Guide, the material stated that it integrates digital technology that is compatible with Clever. There is no evidence of the platform being compatible with other LMS platforms. The provided evidence from the publisher is not aligned for grades six through eight.
- The Alaska section in the Online Library has videos and audio that can be downloaded. Materials can be accessed on an iPad, laptop, and smartphone without difficulty.

TPS STEAM into Science Grade 6

Indicator 9.3

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The Teacher Edition of the STEAM Activity Guide follows the scope and sequence as outlined in the Online Library. The scope and sequence outlines the TEKS that align with the units and show the textbook regencies that support the TEK.
- Each chapter in the Learn By Doing STEAM Activity Reader-Teacher Edition uses strategies such as giving background information with key vocabulary and identifying key concepts so that students can answer TEKS-aligned questions. This format assists students as they work on activities that are aligned with literacy and math.
- The Online Library has a section with famous scientists. The materials align with the expectation that students should know important scientists and their contributions.

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

- The How To Use The Program Guide in the Online Teacher Support section provides a step-by-step process on how to utilize the materials.
- Within the Program Components in the Teacher Program Guide, the instructor is given guidance on how to use technology to support student learning. Materials state that the instructor can use the Online Library Teacher Support - Planning Investigations section to provide the students with information to assist them.

- The Online Library - Teacher Support section has “How to Videos” that assist instructors in generating assessments that support and enhance student learning by using the appropriate tools.
- The Online Library-Assessment Tools K-8 has an Intervention Focus Tutorial that teachers can use to support and enhance student learning, especially for students who are struggling to understand a specific concept.
- The Teacher Program Guide includes a description of all online components.

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

- The Family and Caregiver Guide states that the instructor and caregiver should communicate so that digital access to the curriculum is provided for the student at home. Caregivers are given digital access to homework, TEKS and ELPS, worksheets, and glossary cards.
- The Steam section in the Online Library has integrated with digital technology that supports student learning and engagement. For example, the NEST family videos and workbooks are TEKS-aligned and provide another avenue of engagement and learning.
- The Online Library says all Reader Activity Books are available from at home with digital access, providing caregivers and students the opportunity to practice and learn outside the classroom.