TPS STEAM into Physics

TPS STEAM into Physics Executive Summary

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

TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
100%	100%	100%	100%

Section 2. Instructional Anchor
- The materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.
- The materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

Section 3. Knowledge Coherence
- The materials are designed to build knowledge systematically, coherently, and accurately.
- The materials provide some educative components to support teachers’ content and coherence knowledge.

Section 4. Productive Struggle
- The materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

Section 5. Evidence-Based Reasoning and Communicating
- The materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.
- The materials provide teacher guidance to support student reasoning and communication skills.

Section 6. Progress Monitoring
- The materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.
- The materials include some guidance that explains how to analyze and respond to data from assessment tools.
- The assessments are somewhat clear and easy to understand.

Section 7. Supports for All Learners

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

Section 8. Implementation Supports

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

Section 9. Design Features

- The visual design of materials is somewhat 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 somewhat developmentally and course-appropriate and provide support for learning.

Section 10. Additional Information

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

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Indicator 2.1

Materials are designed to strategically and systematically integrate scientific and engineering practices and course-level content as outlined in the TEKS.

1	Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of appropriate scientific and engineering practices as outlined in the TEKS.	M
2	Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level or course as outlined in the TEKS.	M
3	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 develop an understanding of science concepts.	M

Meets | Score 4/4

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

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of appropriate scientific and engineering practices as outlined in the TEKS. Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level or course 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 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 appropriate scientific and engineering practices as outlined in the TEKS.

- Materials provide opportunities for students to develop, practice, and demonstrate mastery of appropriate scientific and engineering practices outlined in the TEKS via various hands-on-digital, writing, and research activities throughout the units, including expository text. The scope and sequence in the front pages of the teacher textbook identifies which SEPs are covered in each core area. For example, in lesson TEKS 5E, students begin the lesson on Newton's first law to describe the motion of objects with an expository text that allows students to ask questions and define problems in a familiar situation. After reviewing force diagrams, the text reads, "At first glance, you may answer that the car is not moving because the normal force (force acting perpendicular to the ground surface) is equal in size and opposite in direction to the weight of the car. These are balanced forces and, as such, have no net effect on the car. Most people would assume that the lack of a forward or backward force on the car means that the car must be stationary. In most cases, stating the car is not moving would be correct, but does the absence of a force in the forward or backward force on this car means that the car must be stationary?" In the scope and sequence in the front pages, the materials clearly online that "Core Area 1: Forces and Motion" covers TEKS 5E, explains and applies concepts of equilibrium and inertia as presented by Newton's first law of motion using relevant real-world examples.

- The Expository Text provided for students at the beginning of all lessons includes thought-provoking questions that build upon their prior knowledge, facilitating the understanding of the current lesson. For example, in Core Area 2, the Expository Text for Coulomb's Law introduces students to Van der Graff generators and the basics of Coulomb's Law and eventually asks questions to use mathematical and computational thinking, such as "How much weaker will the force be if the distance between two objects is increased by a factor of 10?"
- The materials include the Online Library - High School Engineering located on the main menu page of the materials. This CeMast Engineering Student book contains a problem where teams will design an electric vehicle to be used on land. The materials state that "all students are supposed to be able to do the things on this list" and proceed to list eight science and engineering practices, including asking questions, defining problems, and developing and using models.
- The materials offer numerous opportunities for students to develop scientific and engineering practices that align with their grade level. For instance, the CeMast Engineering activities guide students through comprehensive engineering tasks that span approximately 20 weeks. Additionally, the high school engineering online library and STEM projects provide further resources and projects for students to engage in hands-on engineering experiences.

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

- Materials provide opportunities for students to develop, practice, and demonstrate mastery of appropriate scientific and engineering practices outlined in the TEKS via various hands-on-digital, writing, and research activities throughout the units. The embedded Expository Text sections within the student textbook effectively explain various methods for solving analytical physics problems. For example, the unit for Newton's Second Law in the Student Textbook tasks students to explore an expository text with guided questions and research that employs students to use an image of an accelerating car to develop an understanding that "Newton's second law tells us that the size of this acceleration will be directly proportional to the force applied to it, and inversely proportional to the mass of the car."
- The Teacher's Guide and/or lesson notes included in the materials provide comprehensive explanations, descriptions, and connections between the science and engineering practices (SEPs) and the development of conceptual understanding. The Table of Contents guides students through the analysis of motion, beginning with an exploration of motion in one dimension and then progressing to motion in two dimensions. Each new topic is accompanied by a detailed description of the TEKS, SEPs, misconceptions, and prior skills to support teachers in delivering effective instruction.
- The High School Physics Slides included in this resource contain interactive questions designed to assess students' mastery of the covered material. These questions offer an opportunity for students to demonstrate their understanding. For instance, in the High School Physics TEKS 5 slides, there are specific questions that require students to solve problems related to position, velocity, and acceleration. Slide 6 offers students the following scenario and tasks: "A car sets off from home and accelerates at a constant rate to 30m/s over a period of 5 seconds. The car remains at this velocity for 10 seconds before decelerating back to rest over a period of 6 seconds. Draw a graph to describe the motion of this journey. Use the graph to calculate the total distance traveled. Use the graph to calculate the acceleration for each section of the journey."

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 develop an understanding of science concepts.

- The investigations in this resource involve the analysis of pre-populated data to explore various physical events. The lab activities are structured with scripted procedures; in the unit aligned with TEKS 5a, students participate in a hands-on laboratory activity where they plan and conduct an experiment to examine the velocity of an object using photogates. This lab allows students to actively engage in scientific inquiry and apply their understanding of velocity concepts.
- The materials provide various opportunities for students to actively engage in problem-solving through the use of CeMast projects, student focus exercises, starter/hooks, and extension work. These resources are available for each new topic, ensuring that students have ample opportunities to apply their knowledge and skills in meaningful ways.
- The SMSC (Social, Moral, Spiritual, and Cultural) section and Career Opportunities section in the teacher edition lessons provide thought-provoking questions and real-life connections to help students develop their critical thinking skills and make connections to the world around them.
- The teacher and student textbooks begin with a look into TEKS 1A, which describes the importance of students learning to ask questions and observe what they see in the phenomena-related activities. Two of the learning objectives for this lesson include “ask appropriate questions that can be addressed in a practical classroom laboratory setting” and “prepare investigations that lead to the collection of data addressed at solving the problem.”

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 and course-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 and course-level content as outlined in the TEKS. Materials intentionally draw upon 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 and course level content as outlined in the TEKS.

- The materials integrate phenomena and problems throughout the lessons to facilitate the authentic application and demonstration of scientific and engineering practices aligned with the grade-level content specified in the TEKS. For instance, the *CeMast Engineering Prof Development Teacher Book* includes engineering projects that promote the application of scientific and engineering practices. The textbook provides a description of simple harmonic motion. CeMast offers an extensive engineering project spanning twenty weeks, which incorporates the six-step engineering design process, allowing students to engage in a more comprehensive and authentic engineering experience.
- The materials include starter/hook questions that are based on everyday phenomena, fostering student engagement. For instance, in the unit addressing TEKS 5C in the teacher textbook, students are prompted to determine the time it would take for a ball to fall to the ground, encouraging them to utilize their prior knowledge to formulate a hypothesis. As the lesson progresses, students learn how to calculate the expected time for the ball to fall and subsequently verify their calculations through practical experimentation using an actual ball.

- The materials offer real-life problems in Lessons 5B through 5E, leveraging students' existing understanding of motion to facilitate authentic applications. These problems are integrated into the sections at the conclusion of each lesson, focusing on concepts such as time, displacement, velocity, speed, and acceleration.

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

- The materials offer support for both teachers and students in addressing situations where explanations based on prior knowledge may be insufficient or incomplete. To assist teachers in identifying areas where students might possess misconceptions or incomplete understanding, each unit includes a dedicated section called "Common Misconceptions." This valuable resource enables teachers to assess and address any inaccuracies or gaps in students' prior knowledge. Additionally, the materials include a "Prior Knowledge" section at the beginning of each new topic, providing a clear overview of the foundational knowledge necessary for successful comprehension and application of the upcoming content.
- In the unit that addresses TEKS 5d, students have the opportunity to apply their prior knowledge of acceleration in a novel context, specifically exploring its application in circular and projectile motion. This unit builds upon their existing understanding of acceleration and expands their knowledge by examining how it operates in different scenarios.
- The materials begin with a prior knowledge section that serves as a reminder for students about previously covered lessons and topics, such as scalar and vector quantities. This reminder helps to establish a foundation and build upon the concepts learned in previous lessons, such as speed and velocity.

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

- The materials include a teacher background section, which provides educators with additional information and context related to the topics being taught. This section supports teachers in having a solid understanding of the content they will be teaching. Furthermore, the materials outline expected information attainment for students, setting clear expectations for what students should learn and achieve. In addition, the materials offer explicit activities that help students visualize and engage with the topics, promoting a deeper understanding of the concepts being covered.
- The Teacher Textbook for each unit includes a set of learning objectives that clearly outline the expected student outcomes by the end of the unit. These learning objectives serve as a guide for teachers, providing a clear understanding of the specific skills and knowledge students should be able to demonstrate.
- The materials effectively identify the student learning goals associated with each phenomenon or engineering problem presented throughout the course of study. These learning goals are clearly outlined through the listing of objectives, prior knowledge, and misconceptions, providing a comprehensive understanding of the intended outcomes for students.

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Indicator 3.1

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

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

Evidence includes but is not limited to:

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

- The course materials exhibit a gradual increase in complexity, establishing connections between new learning and previously acquired knowledge, as well as future learning goals, both within and across units. As an illustration, the unit on motion progressively introduces more intricate concepts and calculations, starting from changes in position and advancing to two-dimensional motion. In Unit 7D+E, the teacher background section establishes a connection between momentum and collision concepts and kinetic and potential energy. Within the Student Textbook, the Prior Knowledge section for Lesson 7D on Impulse spirals to Lesson 5E on Newton's First Law of Inertia. It draws real-world connections to various topics, such as riding in a car or a rocket launching, to reinforce understanding.
- In the kinematics section of the book, there is a gradual increase in complexity as the learner progresses through the different TEKS related to the subject. It starts with the basic concept of determining displacement and velocity, then advances to the understanding of acceleration, and finally delves into the topic of projectile motion. Each TEKS builds upon the previous one, adding incrementally more complexity to the overall concept.
- In the Student Textbook, the Learning Activities section presents a progressive increase in complexity for students, transitioning from topics like displacement/time graphs in linear motion to the exploration of harmonic motion. Additionally, in the work and energy unit, the materials provide a comprehensive overview that includes the TEKS covered, objectives (such as defining work and power), skills developed (such as numeracy and calculating the area under a

graph), and the prerequisite knowledge required (such as defining and analyzing motion in one dimension using equations and understanding concepts like distance and displacement) for effective comprehension of the work and energy concepts.

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

- In Unit 8, students engage in the observation of reflection and refraction of light, utilizing their observations to construct a mathematical relationship that explains these phenomena. To activate their prior knowledge, Unit 8E+F presents a task where students are challenged to create a spectrum using a prism and a light source. Furthermore, students enhance their understanding by reading about the dispersion of light in the accompanying expository text.
- The materials follow a progression that starts with concrete representations, moves to representational representations, and then culminates in abstract reasoning to enhance conceptual understanding. To illustrate this, the concept of work is initially introduced through a picture depicting a boy pushing a box. Subsequently, the materials explore the connection between work and circular motion before delving into the topic of work on an incline. This sequential approach allows for the activation and development of prior knowledge, paving the way for a deeper conceptual understanding. Moreover, the materials include math and descriptions pertaining to work done in a piston, further enriching the learning experience.
- In the *Student Textbook*, the vocabulary related to scalar and vector quantities is gradually introduced through specific examples, such as distance and displacement, as well as speed and velocity. This scaffolded approach helps students develop a clear understanding of these concepts. Additionally, in the Learning Activities section of the textbook, students are paired up to compare the characteristics of transverse and longitudinal waves.
- The lesson addressing TEKS 8A serves as an introduction to harmonic motion, providing students with foundational knowledge about different types of waves and their formation. As students progress to TEKS 8B, they build upon this knowledge by focusing on determining the characteristics of various types of waves. These units are designed to progressively build and expand upon the knowledge acquired in previous units, ensuring a continuous and coherent learning experience.

Materials clearly and accurately present course specific core concepts and science and engineering practices.

- The curriculum materials clearly and accurately present science and engineering practices (SEPs). The materials provide teachers with clear and concise lesson guidance that leads students to learn via science instruction. Within this guidance is clear information within each unit for how to facilitate student lesson activities, key questions to answer within each lesson task, and teacher guidance to address misconceptions, ensuring that concepts are presented. For example, in lessons 2B and 2C, all core concepts and SEPs are presented in the teacher textbook resources with guidance on implementation activities and the link between the core concepts and SEPs and associated activities. The materials present a “Skills Developed in this Lesson” section, which clearly outlines the skills necessary for TEKS 2B and 2C, such as numeracy skills, producing graphic organizers, taking measurements, rearranging equations, and investigative skills. There is a teacher background section that outlines all key points within the lesson, such as statistical features in data sets, statistical definitions, and examples of how to calculate each. The background section goes on to explain how these statistical features are shown on graphs. The lesson plan follows with a clear and student-friendly objective, engaging expository text with graphics, as well as seven clear and accurate student tasks all centered around the analysis of data and mathematical calculations to assess quantitative relationships in data.

- The materials clearly establish specific learning targets for each course, outlined at the beginning of each topic and lesson, comprehensively addressing all of the TEKS clearly and accurately. For example, lesson 7A learning objectives include “define work,” “define power,” “Identify when work is being done on a system,” “Identify when work is being done by a system,” and “calculate power and work in one dimension.” Another example is seen in lesson 8B, where students compare the characteristics of transverse and longitudinal waves, including electromagnetic and sound waves. The learning targets for this lesson are “draw and label the features of transverse and longitudinal waves,” “describe the relationship between oscillation and wave direction in longitudinal and transverse waves,” “describe the key features between sound and electromagnetic waves,” and “determine frequency and period of waves from an oscilloscope image.”
- The materials clearly and accurately present course-specific science concepts through robust lesson plans. For example, in lesson 8B, students compare the characteristics of transverse and longitudinal waves. The lesson begins with “Lesson Keywords” that provide clear and easy-to-read definitions. The lesson continues with an expository text for students, the text begins with a story from December 2020, where New Yorkers heard a sudden explosion, shaking homes and startling residents came from a meteor’s sonic boom, which provides real-world phenomena to engage students. The text continues by describing that waves are disturbances that transfer energy, much like plucking at a guitar string. After, students read about transverse and longitudinal waves, where representational images are shown, before reading about the different waves seen in typical households, as well as wave features, such as amplitude, wavelength, crests, and troughs. The text finishes with an example of how to calculate the period and frequency of waves from an oscilloscope. Students then begin with a hook activity where they determine how the Boston marathon bomber was arrested after police spotted him hiding in his boat using night vision or infrared goggles before they list out common waves used at home. The first student task has the teacher model features of waves, such as crest, trough, amplitude, wavelength, and frequency. Students then think about how the image’s wavelength was produced, and they are then given a slinky and attempt to make a transverse wave of their own. There are teacher notes to ask, “In order to make the wave, which way did you move your hand?” and “Which way did the wave travel? This ensures that students understand that in a transverse wave, the direction of the wave is perpendicular to the direction of the oscillation. Students repeat the same steps to understand longitudinal waves. After this, students listen for the difference in sound waves with and without a vacuum, where they compare the properties of light and sound waves. In the following task, the teacher uses a signal generator and oscilloscope to produce an image of a wave where students identify key features. The homework activity ties back to the phenomena where students explain why light from an exploding star can reach Earth, but the sound of a star exploding does not.
- The materials present grade-specific core concepts and science and engineering practices (SEPs). For example, The Horizontal Alignment Excel document lists all the SEPs, and the page numbers of the skill can be found within each lesson.

Mastery requirements of the materials are within the boundaries of the main concepts of the course.

- The materials include specific learning targets for each course. The scope and sequence provides a clear outline of the covered TEKS and their order. Additionally, each section dedicated to TEKS in this resource starts with a set of Learning Objectives that clearly outline the material to be covered in each unit. These objectives help guide students' understanding and achievement of the topic. For example, in the Work and Power unit, students are expected to recall the statements of the work-energy theorem, create energy diagrams to represent changes, and apply the law of conservation of energy for transformation and efficiency calculations.
- In Chapter 8G, the objective is explicitly stated as "describing and predicting image formation through reflection from a plane mirror and refraction through a thin convex lens." The lesson then establishes the conceptual boundaries of this objective by engaging students in activities where they predict the image formation for objects at various distances, test their predictions, and describe the observed results.
- The resource offers multiple activities within each TEKS section to facilitate the learning of concepts. Furthermore, the Assessment Generator accompanying this material includes questions that align with the expected level of mastery for students. It also includes more challenging and less challenging questions, allowing teachers to accurately assess students' understanding of the material and determine their progress.

Indicator 3.2

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

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

Partial Meets | Score 3/6

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

Materials somewhat support teachers in understanding the vertical alignment of course-appropriate prior knowledge and skills guiding the development of course-level content and scientific and engineering practices. Materials contain explanations and examples of science concepts, including course-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 vertical alignment of course appropriate prior knowledge and skills guiding the development of course level content and scientific and engineering practices.

- The majority of units in the materials provide information on previously covered physics TEKS and include a teacher background section. For instance, Lesson 3A specifies TEKS 2A as prior knowledge for that unit. The materials include a vertical alignment document spreadsheet; however, the materials lack clear connections to previous grade-level knowledge and skills for all TEKS, as well as future applications of the skills acquired in the lesson. Additionally, there is a lack of guiding documents that outline the progression of content and concepts, including their increasing depth and complexity throughout the course.
- There is a lack of description regarding the skills covered at the end of the previous grade. Specifically, in high school courses, the materials cover content-level concepts within the academic year. However, there is no list provided to illustrate the progression or the increase in the depth and complexity of skills that students should be able to demonstrate by the end of the year.
- The units do not include a vertical alignment resource specifically for engineering practices. Consequently, it is the responsibility of the teacher to assess and determine the student's current understanding and progress in relation to engineering practices. The teacher should then make necessary adjustments to the materials to address any gaps in knowledge and ensure that students acquire the required understanding of engineering practices.

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

- Materials contain explanations for teachers on grade-level misconceptions to support teachers' subject knowledge. In Unit 5G+H, there is a detailed explanation and examples of Newton's Third Law and action-reaction forces. One example explores the action-reaction forces acting on a water skier, while another example focuses on the action-reaction forces between the Earth and the Moon. These explanations and examples are tailored to adult-level understanding but remain within the scope of the current course. This information enables teachers to enhance their own knowledge of the subject matter while ensuring that the materials are accessible and comprehensible to students.
- Materials contain explanations and examples of science concepts for teachers. The teacher's textbook includes a comprehensive teacher background section at the beginning of each unit and most lessons, offering detailed explanations of the science concepts covered. Additionally, within the teacher's guide for every unit, there are specific sections that offer strategies and support for students who may require Response to Intervention (RTI), English Language Learner/English as a Second Language (ELL/ESL), or Special Education accommodations and assistance.

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

- The Teacher Program Guide provides an explanation of the overall design of the program, while each unit in the Teacher Guide details the specific delivery approach intended for that unit, offering a clear purpose and rationale for their structure and design. Furthermore, the materials outline the course's objective in the program guide's section on the philosophy of science.
- The Teacher Program Guide contains comprehensive instructions on how to effectively utilize all the information presented in the student and teacher textbooks. The section titled "How to Use the Program" in the teacher support section provides clear guidelines and step-by-step instructions on how to navigate and implement the program, beginning with Step 1, which is the "Learn by Doing STEAM Activity Book."
- The materials provide an overview of the intent and purpose of the instructional design within the "High School Sciences Teacher Program Guide." The guide includes a program introduction that contains the material's "philosophy of science teaching and learning" as well as a section detailing "research-based strategies" and the included components within the program.
- The materials provide a "Family/Caregiver Guide - High School" that explains the intent and purpose of the instructional design of the program. Again, a program introduction that includes the material's "philosophy of science teaching and learning and research-based strategies" is provided.

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Indicator 4.1

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

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

Evidence includes but is not limited to:

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

- The materials highlight specific sensemaking behaviors. For example, the authors of the book emphasize the importance of metacognition and support it by scaffolding the lessons and tasks throughout the curriculum. To facilitate student reflection and engagement, a student journal is provided that aligns with the tasks in the student textbook. For example, in the student journal there are key words, key questions, and homework tasks that are aligned with the textbook. In TEKS 2A, the student journal lists key words such as model, properties, and predictions as well as key questions such as "Can we see the electron cloud? Can we see the nature of the bonds? Can we see the nuclei or its constituent parts?" The focus exercise suggests using the academic language as much as possible and to ask the teacher for help if the student needs further clarification.

- The materials provide opportunities for sensemaking through reading, writing, thinking, and acting as scientists and engineers. The majority of the TEKS units incorporate resources for students to read and experiments that promote critical thinking and scientific engagement.
- The materials offer students the opportunity to explore life without electricity, fostering an understanding of the importance of generators, transformers, and motors. A clear learning goal is provided, emphasizing the ability to articulate the role of these components.

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

- The materials include various activities, including pre-reading and vocabulary exercises, to assist students in developing a comprehensive understanding of the concepts. In Unit 5E, the unit commences with a starter activity led by the teacher, fostering a discussion on forces and acceleration. During this discussion, vocabulary development, such as the term "acceleration," is emphasized. Task 1 further enhances students' conceptual vocabulary by introducing the term "terminal velocity." Additionally, Task 2 involves expository reading that delves deeper into these concepts.
- The materials offer opportunities for students to actively engage with scientific texts through various activities, including pre-reading and vocabulary exercises, aimed at fostering a comprehensive understanding of the concepts. For instance, in the work/energy section, students are introduced to lesson keywords and questions to facilitate their learning. Additionally, the student focus exercise prompts students to collaboratively work through the provided questions with a peer, encouraging discussion and deeper comprehension.
- The majority of the units feature dedicated text sections that allow students to engage in reading activities to acquire information related to the materials being covered. For example, in the unit for TEKS 4C, there are provided links to multiple sources that offer grade-level appropriate scientific texts for students to access.
- The materials provide opportunities for students to investigate generators, motors, and transformers by engaging with relevant scientific texts on electrical and magnetic forces. These texts are accompanied by photos, diagrams, and drawings that depict the application of electrical and magnetic forces in everyday life. Students are prompted to examine a photo of a generator, motor, or transformer and analyze and describe the electrical and magnetic forces and fields involved.

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

- The materials offer students numerous chances to effectively communicate their understanding of scientific concepts through written and graphic modes. Students are prompted to create graphic organizers and write essays to articulate their ideas. In Unit 6A's expository text, students are reminded to maintain their graphic organizers in their student journals for reference. Task 4 specifically requires students to write a paragraph comparing the equations of electric and gravitational force.
- The materials provide opportunities in the work/energy section for students to engage in collaborative activities, such as answering questions with a peer and creating a graphic organizer using the information presented by scientists. The student textbook in the work/energy section specifically mentions two types of graphic organizers for students to utilize. Throughout various

TEKS units, graphic organizers are provided to support students in actively engaging with the material.

- The materials guide students to create graphic organizers as a strategy to enhance their ability to answer questions both quantitatively and qualitatively. This practice is consistently integrated into the beginning of each lesson, preparing students to respond effectively to the questions posed in the Student Task section.

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

- The materials provide authentic engagement and opportunities for productive struggle, allowing students to act as practitioners. In Unit 6B, students are tasked with designing, constructing, and evaluating a generator. Also, in the student textbook, the homework section for Lessons 6B and C states, “There are several free online instructional videos on how students can construct their own aluminum foil electroscopes using everyday equipment. Students should watch some of the videos online and create their own design on paper.”
- The CeMast project provides opportunities for authentic student engagement and perseverance of concepts through productive struggle, allowing students to act as scientists and engineers.
- The materials feature a range of substantial projects that provide students with opportunities to engage in the engineering design process. These projects are designed to challenge students, encouraging them to persevere and problem-solve as they navigate through the content. For example, instructions for practical lab activities are provided in the online slides that accompany each lesson. For example, in Lesson 5D, slides 9 and 10 provide student instructions for how to calculate the horizontal speed at which a ball bearing will leave a table.
- Materials provide opportunities to act as scientists. For example, in Core Area 2, students predict how electrical devices perform, observe how electrical devices can perform under specific controlled instances, and evaluate how their views match their predictions through calculations or the Student Task. Additionally, after each investigation, in the plenary, students are asked questions such as “What question are you trying to answer/problem are you trying to solve?” and “What would you improve on if you were to repeat the investigation?”

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- The materials provide opportunities for students to develop how to use evidence to support their hypotheses and claims. In Lesson 5E, the Starter/Hook section of Learning Activities allows students to formulate hypotheses prior to the Teacher providing the solution. The Student Task enhances this process by engaging students in pairs or small groups to solve a problem within the unit. In TEKS Section 3a, there is a discussion on the historical practices of scientists conducting experiments, emphasizing the selection and significance of evidence. It highlights the importance of using evidence in scientific inquiry.
- The materials prompt students to utilize evidence when supporting their hypotheses and claims. For example, in Unit 3B+C, the student tasks focus on claims and evidence. Task 4 specifically emphasizes the use of evidence to support claims. Students prepare presentations and engage in debates, ensuring they have sufficient evidence to substantiate their claims. For instance,

while teaching TEKS 1E and 1F, students engage in various activities and respond to questions such as, “Does the conclusion you draw align with scientific ideas, principles, and theories?”

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

- Materials include embedded opportunities to develop and utilize scientific vocabulary in context In Unit 6B+C, numerous electrical concepts are demonstrated, followed by activities like notetaking, using graphic organizers, and engaging in discussions. For instance, in Student Task 7, following the demonstration of electric charge and electric field concepts, students are required to create a graphic organizer that includes terms such as motors, generators, electromagnets, and transformers.
- The materials provide experiences with new concepts, followed by opportunities to use the vocabulary presented. For example, at the start of each new topic, the vocabulary words are listed along with their definitions. When presenting TEKS 5A, velocity is defined as “speed in a given direction,” and acceleration is described as “the rate of change of velocity.” The motion of an ant is then depicted using pictures and eventually represented in graphs.
- Each TEKS unit includes a set of Lesson Key Words, which comprises essential vocabulary words that students need to grasp. These words are provided at the beginning of each section to facilitate students in locating and comprehending key ideas. At the beginning of Lesson 5E, students are provided with a Key Vocabulary section where students are directed to explain the vocabulary on a leaflet or poster.

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

- The materials address scientific argumentation in Unit 3B+C, Tasks 3 & 4. The student task is an opportunity for students to develop how to engage in argumentation. For example, students choose from three topics: eliminating newspapers, e-cigarettes, and taxing junk food to reduce obesity. Students research their chosen topic and present an argument for or against that topic.
- In the lesson for TEKS 3B and 3C, the focus is on fostering research and communication skills. For example, in Task 3, students are engaged in organizing a debate, conducting research on the topic, and delivering presentations to the class.
- When students are taught TEKS 4A, the lesson evaluates and critiques scientific claims by using empirical evidence, logical reasoning, and observational testing. For example, the students are given the problem (Student Task 1) of how to increase the speed of a race car to research and develop the skills needed for argumentation and discourse.
- Materials provide for students to engage in active discourse. For example, in the Student Focus Activity for TEKS 8C, students engage in reading and subsequent discussions with their peers about the material they have just read. Additionally, in TEKS 5F, students are directed to explain net forces to their parents/guardians in order to explain and describe net forces to their classmates.

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.

- The materials provide opportunities for students to support their explanations of phenomena. For instance, after investigating the relationship between frequency alterations in a ripple tank and the amplitude of water waves, students are prompted to justify their responses and evaluate if their conclusions align with scientific ideas, principles, and theories.

- The materials provide opportunities to develop their written and verbal arguments throughout lessons. For example, the enrichment activity for TEKS 5D involves students researching a winter Olympic sport and examining how Newton's Second Law is demonstrated in that sport. Students are then required to create a presentation on the topic and present their findings. Additionally, in the TEKS 7B lesson's Student Task 5 and Plenary of the Mechanical Energy, students are assigned the task of evaluating their investigation and reflecting on potential improvements of launching a pendulum and cannonball straight up, respectively.

TPS STEAM into Physics

Indicator 5.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- The materials provide teachers with possible student responses to questions and tasks that support students during lessons and investigations. For example, in Unit 8C, which addresses TEKS 8C related to waves, there is a description of typical student misconceptions about waves. The section explains that students may incorrectly believe that counting the peaks of a wave indicates the number of wavelengths, but they should be guided towards a different technique involving a pencil.
- Materials provide the following additional key questions in the TEKS 7B lesson for the teacher to deepen students' learning: "Where is potential energy the greatest? Where is kinetic energy the greatest? What are the energy changes as the pendulum swings?"
- The resource includes a section called "Teacher Background" within the various TEKS sections. This section ensures that the teacher is knowledgeable about the important material for the unit. When covering TEKS 8D and students are drawing ray diagrams, all diagrams provide clear, step-by-step worked examples. There is no assumption a student will be able to rearrange and apply equations or convert units correctly. The expository texts predict problems in this area and provide template answers, with each step explained, so students can follow along.

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

- The materials provide embedded support for the teacher in how to scaffold students' development of scientific vocabulary related to the concepts being taught. In Unit 1B, which addresses TEKS 1B regarding types of scientific investigations, the entire unit guides students in progressively developing and utilizing the vocabulary associated with these investigations, starting from basic definitions to actually conducting them. Additionally, in TEKS 7A for the lesson Work and Power, prior to reading the text, the following vocabulary words and definitions are discussed: work done, power, work-energy theorem, and system.
- Each TEKS unit includes a section called "Prior Knowledge," which outlines the knowledge that students should have acquired before beginning the unit. For instance, in Unit 8G, the materials inform the teacher that students should have already learned the material from Unit 8D before starting the current unit. This information includes the vocabulary reflection, refraction, diffraction, interference, standing wave, the Doppler effect, polarization, and superposition.
- The Teacher Textbook provides guidance for what is expected to be learned. For instance, Section 5F, Newton's Laws and Forces, particularly Student Task 1, provides the teacher with an explanation of how to rearrange the equation F=ma to solve problems using given data to assist in teaching basic algebra.

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

- The materials provide teacher support to prepare for student discourse. Each unit includes a Teacher Background section, providing teachers with an opportunity to prepare for student discourse. For instance, in Unit 3A, which focuses on TEKS 3A: Develop explanations..., the Teacher Background section includes an explanation of scientific ideas and how to effectively utilize them.
- The materials provide steps for establishing norms for class discussions, including when covering TEKS 3C (engaging respectfully in scientific argumentation). These steps offer suggestions for effective communication, such as avoiding talking down to others, refraining from shouting or being overly aggressive, and various other guidelines to promote respectful and constructive discussions.

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

- The materials provide teacher support and guidance to engage students' thinking in various modes of communication throughout the course. In Unit 1G, which addresses TEKS 1G: Develop and use models..., there are several examples of various communication modes. For instance, in Student Task 1, there is a class discussion about types of scientific models. In Task 3, students are required to create a scientific model on a chosen topic and communicate the strengths of the model using a table. The Plenary in TEKS 1G focuses on refining students' solutions by having them share their solutions with fellow students and receive feedback on how to improve them.
- The materials provide teacher support for facilitating the sharing of students' finding solutions. The materials provide feedback tips and examples that teachers can utilize to support students. For instance, after reading a text on forces, the materials suggest placing students in groups and having them summarize the reading, ask each other questions, and take notes. Then, the

materials direct the teacher to reconvene the whole group, ask and answer questions, and check for inaccuracies.

- The materials recommend the teacher create a plan to address any inaccuracies or knowledge gaps. For example, in TEKS 5C Kinematics, the materials include a student focus exercise where students are required to explain the concepts of Speed, Velocity, and Acceleration to their peers by relating them to everyday life examples.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials include a range of diagnostic, formative, and summative assessments that include formal and informal opportunities to assess student learning in a variety of formats. For example, in Unit C1, there is a plenary activity where students are prompted to write about the nature of light. This activity follows the student tasks that covered the topic, serving as a formative assessment.
- Materials include diagnostic assessments for providing teachers with information to monitor progress and identify learning gains in a variety of formats. For example, TEKS 8E focuses on the application of the emission spectrum; the teacher's textbook includes key questions to assess students' understanding of the topic. These questions aim to gauge their knowledge and include prompts such as “How does a prism create a spectrum of light?” and “Which color has the longest wavelength?”
- The materials include an assessment generator in the Online Library Physics tab. The generator allows the user to create formative or summative assessments by Core Area. For example, for Core Area 4 Waves, the user has the option to select the standard, level of question (Below, At, Above), and the question format (multiple choice, open-ended, or both).
- Materials provide for formative assessments in both multiple-choice and open-ended questions, i.e., Core 1 Analyzing Motion “Acceleration is a scalar quantity?...An object has a mass 0.6 kg and experiences an acceleration of 12m/s^2. What is the force experienced?” etc.

TPS STEAM into Physics

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

- Materials assess all student expectations and indicate which student expectations are assessed. For example, the online assessment generator list is categorized by Core Area and contains questions covering all of the physics TEKS. For example, Core Area 3, Energy, contains questions from TEKS 7A, 7B, 7C, 7D, and 7E.
- The materials assess all student expectations, as outlined in the TEKS, by the course. The materials contain a cohesive scope and sequence that provides a clear overview of the content to be taught. The teacher and student textbooks present the TEKS at the beginning of each new topic.
- The book's chapters are organized according to the TEKS they cover. Each TEKS or group of TEKS has its own dedicated section featuring a specific number of associated questions and activities. For example, TEKS 8A is accompanied by seven student activities and five associated questions.
- Materials provide both the TEKS correlation for each assessment item and the answer keys for every assessment, i.e., Core 1–6 questions in the Assessment Generator align with TEKS 5–9 or Motion-Quantum Phenomenon.

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

- Materials include assessments that integrate scientific concepts and science and engineering practices. For example, in Unit 6D+E, there is a project that requires students to apply their understanding of circuits by constructing, testing, and measuring circuits.
- The materials include assessments that require students to integrate scientific knowledge and science and engineering practices appropriate to the student expectation being assessed. For example, when covering TEKS 7E (conservation of momentum), students are provided with materials to construct a Newton's cradle, which serves as a model for demonstrating the concept of conservation of momentum during an inelastic collision.
- In the activities addressing TEKS 7D and 7E, students utilize their knowledge of the scientific concept of momentum and engineering practices to construct and improve a device that demonstrates the conservation of momentum.
- The materials include assessments that prompt students to integrate scientific knowledge and science and engineering practices relevant to the specific student expectation being assessed. For example, an assessment question may ask: “At the point of zero displacement, a simple pendulum with a mass of 0.1kg has a velocity of 20m/s. How much gravitational potential energy will the pendulum have gained when it reaches the point of maximum displacement?”

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

- Multiple assessment methods are available to evaluate students' application of knowledge and skills in novel contexts in the Student Tasks, Homework, and Extension Activities. For example, Unit 6A includes an extension activity where students use their knowledge to find the electric force between two people who have lost electrons.
- Also, in Unit 6B+C, students must apply their knowledge to create an electroscope and explain its operation.
- Materials provide informal assessments in the lesson for TEKS 5F Net Forces. On slide 12, students are asked to construct a free-body diagram for the cup given in the image. They are asked to use Newton’s Second Law to calculate the acceleration of the cup for several situations.

- The materials include assessments that require students to apply knowledge and skills to a new phenomenon or problem. For example, when covering TEKS 6C (describe conservation of charge), students use their knowledge of electricity and magnetism to design, test, evaluate and refine a simple electric generator.
- The CeMast Engineering section includes another assessment that requires students to apply knowledge and skills to a new phenomenon or problem. The students are given the task of designing an electric vehicle to be used on land. The students must have prior knowledge of velocity, acceleration, forces, and other physics concepts before accomplishing this task.

Indicator 6.2

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

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

Partial Meets | Score 1/2

The materials partially meet the criteria for the indicator. Materials include some 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 some 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 some 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 materials include information that guides teachers in evaluating student responses on formative assessments. For example, in Lesson 1E/1F on interpreting data, teachers are provided with questions, an answer key with exemplar answers, and possible misconceptions (e.g., that students may be confused between a chart and a graph) to consider. For example, one question is for students to analyze data and describe the line of best fit. The answer key states that "a line of best fit is a prediction of how the data would appear if all variables, measurements, and conditions had been perfect. It allows us to identify and analyze trends more clearly and make further predictions about how the data would progress beyond the measurements made in the investigation."
- The materials include answer keys to Key Questions that appear within the Student and Teacher Textbooks within each lesson to support teaching in evaluating students informally and in the moment. For example, the lesson on "TEKS 8A" includes the starter question, "A father pushes his daughter on a swing. After a few pushes, he stands back and lets the swing move on its own. Describe the forces acting on the swing after the father has stopped pushing. Describe the direction they act in, and how the rate of movement of the swing may change over the duration of its swing." The lesson guidance provides the teacher with "The purpose of this is to facilitate a discussion around the forces acting upon, and energy changes involved when an object such as a pendulum or swing when it is in motion."

- The Assessment Generator includes information that provides guidance for evaluating student responses by including an answer key with an exemplar student response example for each question. For example, in “Core Area 1 - Physics”, a TEKS 5 question reads, “An object of mass 1.5kg in circular motion has a linear velocity of 8 m/s. If the radius of the circle in which the object is traveling is 10m, calculate the size of the centripetal force acting on the object. Give you answer to one decimal place.” Then, provide an example response stating, “The size of the centripetal force acting on the object is 9.6N (to one decimal place).”
- Additionally, the assessment generators provide correct responses for all multiple-choice questions. For example, in “Core Area 1 - Physics,” There is a question that reads, “A cannon with a mass of 200kg fires a cannonball with a mass of 2kg. If the acceleration of the cannonball is 1000 m/s2 calculate the acceleration experienced by the cannon?” The correct answer is shown, a) 1m/s2.

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

- The materials provide the teacher with an Assessment Matrix that can be used to record student performance data for each of the TEKS addressed in the materials. The Assessment Matrix includes each of the TEKS; however, the materials do not include guidance on how to use the data that is made visible by this assessment matrix when identifying and responding to students' needs.
    - The Teacher Program Guide includes a section on how the assessment tools work and what information results. This section states, “How to use the tools - review the written content in this teacher guide and watch each of the videos available online below…” While the materials list a video for “How to create and use the assessment matrix and report card,” this video is not available. The materials do not include guidance on how to use the data that is made visible by this assessment matrix when identifying and responding to students' needs.
- There are some connections in lessons on how to generally respond to assessment data with general suggestions given on how to meet the needs of big student groups through the “How to Help RTI Students” section. For example, in Physics 5A, teachers have recommendations for RTI, EL, and Special Education students under the respective section titles. Guidance for RTI students includes, “In addition to producing picture glossary cards and completing the actions proposed at the start of term, continue to have students review earlier grade content. Teachers can assign use of the K-8 Intervention Focus Tutorial, which can be found in the Online Library - Intervention Focus Tutorial. Choose G8 TEKS 4C,” then describe enrichment activities such as iMaST projects. Teachers can assign level 1 questions for TEKS 5A to students using the Online Library - Assessment Generator. However, the materials do not specifically provide guidance and direction based on the student's individual needs based on assessment criteria.
- Additionally, benchmark assessments provide a rationale to guide teachers in responding to students' incorrect responses. For example, the “Benchmark & Assessment Tests” question 1 provides the rationale, “Option C is correct,” then states the rationale, “The object travels 3 m in the first 6 seconds, before coming to rest for 3 seconds. Between 9 and 14 seconds the object travels a further 3 m in the opposite direction.” Then, it provides a rationale for why all other answer choices are incorrect. For instance, “Option A is incorrect” then states the rationale, “Total distance traveled is the sum of the distances traveled in each direction (3 + 3 = 6 m).

Displacement tells us how far we are from our starting position. In this case, displacement is 0m."

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

- Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension through the use of the Assessment Generator. This tool allows the teacher to create assessment materials based on learning levels. For example, a teacher can create an assessment at the "Below," "At," or "Above" level for each Core Area. The Assessment generator also includes questions at various levels (i.e., 1, 2, 3) for each Core Area.
- The "Teacher Program Guide Chemistry" provides guidance on how to use information obtained from assessments when planning instruction, intervention, and extension.
    - The materials state if "a student responds correctly, use the Online Library - Assessment tools - choose Level 2 assessment questions for the TEKS being taught (labeled in each lesson plan or scope and sequence documents) and affirm comprehension."
    - The materials state if "a student responds incorrectly, use the Online Library - Assessment tools - choose Level 1 assessment questions for the TEKS being taught…and discuss answer given with student. Determine if there is a misconception and resolve it… If the problem persists, use an art project from the STEAM Activity reader book for the relevant TEKS."
    - The materials state if "a student responds with partially correct information - Follow the steps of a student responding incorrectly but expect to solve the problem earlier in the process."
- Additionally, each lesson plan provides guidance on extension work for each standard within the "Extension Work" section. For example, in lesson 8B the extension work section provides the guidance, "A stone is thrown into a pond, and it creates a transverse wave. A duck in the pond bobs up and down 15 times over a 30 second period; calculate the period and frequency of the wave."

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

- Materials provide resources on how to leverage different activities to respond to student data in the How to Help RTI Students section. The materials within each lesson have sections labeled "Extension work," "Misconceptions," "How to Help RTI Students," "How to Help ELL/ESL Students," "How to Help Special Education Students," and "Enrichment Activity for All Students." For example, the lesson on "TEKS 8A" in the section "How to Help RTI Students" states, "Students may need to review earlier grade content. Teachers can assign use of the K-8 Intervention Focus Tutorial, which can be found in the online Library. Choose G8 TEKS 8A and 8B." Additionally, the "How to Help RTI Students" section within the lesson on "TEKS 8B" states, "Have students create review cards containing personalized notes about key facts for future review.". There is no information about when to use this and with which students.
- The materials provide a "Support Matrix" Excel file, which provides guidance on how to respond to student data by offering additional projects for each standard but does not guide teachers in how to respond to data. For example, all TEKS outside of 9A can be developed through 2 projects; "STEAM Activity Guide - Grade 8 Teacher Edition - p82 - Should I Stay or Should I Go?" and "STEAM Activity Guide - Grade 8 Teacher Edition - p101 - Workout."

- Materials do not address student data directly, i.e., there are no guidance documents provided for how to use the data taken from assessments or group students based on content mastery. The Assessment Generator provides the ability to see the answer choices of each question to calculate the percentage of multiple-choice questions, but a guide is not provided for open-ended questions that may be partially correct. The teacher program guide does include general instructions for the use of different resources to respond to student data. For example, in the RTI section, when studying Newton’s Second Law, students who struggle with mathematical content materials state, “Use the Algebra 1 STEM projects or Algebra 1 textbook and assign relevant content for further study.”
- Materials provide limited guidance on how to leverage different activities to respond to student data is limited. The Intervention Focus Tutorial only covers work, energy, forces, and momentum and uses the same text and graphics from the student textbook.

TPS STEAM into Physics

Indicator 6.3

Assessments are clear and easy to understand.

1	Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.	PM
2	Assessment tools use clear pictures and graphics that are developmentally appropriate.	M
3	Materials provide guidance to ensure consistent and accurate administration of assessment tools.	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.	PM

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- Assessments contain some items that are scientifically accurate, avoid bias, and are free from errors. For example, in the test bank in Core 3, question #1 contains no errors, and provides the correct answer choice.
- Assessments contain some items for the grade level or course that are free from errors. For example, a question from TEKS 5C is, “A car is traveling at 12m/s. If the car accelerates for 7s at a rate of 3m/s2, what is the final velocity of the car? Use the equation v = u + at to help you.” All nine questions were error-free.
- Assessments contain some errors. For example, in TEKS 7, Energy, on question 4 on the assessment, there are answer choices a-e for a multiple choice question that reads “A car with a mass of 800 kg is driving at a velocity of 20 m/s.The driver applies the brakes and the car decelerates to a velocity of 12 m/s. Calculate the change in momentum of the car” and then choice f is blank. The other answer choices all have answers, but f is blank with no answer.

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

- Materials provide a clear image for Core 1 questions. For instance, Core 1 database ID 151 Question 28 provides an image of a graph of velocity over time image that has three clear points. Additionally, images are present for Core 4 questions that are clear, accurate, and course-level appropriate. For example, Core 4 question database ID 1447 Question 32 has an image of a transverse wave that is easily read.

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

- Materials provide clear guidance for teachers to consistently and accurately administer assessment tools. For example, the “Teacher Program Guide High School” includes information on when assessments should be administered. For instance, “By TEKS, by Chapter assessment questions: Students answer questions at the end of each chapter.” and “Benchmark 1 test - to assess natural knowledge at the commencement of term prior to any content of the program being taught.”
- The materials provide clear guidance for teachers to consistently and accurately administer assessment tools. The formal assessment tool is supported by teacher guidance within the Assessment Generator, which gives an overview of the assessment and directions on how to build an assessment. It includes information to support the teacher in understanding the benchmarks. Teachers are also provided with resources within the online library through the help video on using the assessment generator. The video is a step-by-step guide on how to use and create assessments. Finally, the Family Program Guide shares the process for benchmarks, the assessment generator, and the interactive software tool with parents. The parents are given information to prepare them to see the report cards from the data in online performance exams in the system.
- The “How to use the program guide” states, “continually assess your students using the assessments provided in the printed books and online assessment tools. You have an assessment guide that houses aligned content, which can be set as homework or used within the classroom. It includes lesson plans for scientific reasoning and safety.”
- The “Pacing/Year Planner Physics” includes “revision, assessment, and reteach” days that the teacher can use to plan out summative assessments by Core Area.

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

- Materials lack guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals. For example, materials lack suggestions for time, scheduling, or setting accommodations that would allow students of varied needs and abilities to demonstrate course-level mastery.
- Materials offer a wide range of assessments, allowing students to demonstrate mastery of knowledge and skills aligned to learning goals in various ways, including open-ended responses, projects, performance tasks, and multiple-choice questions. However, materials lack guidance for accommodating students with linguistic, neurodivergent, or other needs on assessments throughout the program. Teacher guidance presented as Tips for ELL Students and Tips for Response to Intervention (RtI) Support mentions help with reading student-facing text but does not include guidance to provide oral administration or other accommodations, such as blank graphic organizers or access to dictionaries.
- The materials offer modifications 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.

TPS STEAM into Physics

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 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 mastery.

- The Teacher Text incorporates an Enrichment Activity for ALL Students section in each unit, providing additional opportunities for students to delve deeper into the content. In Unit 7B, there is a specific activity that encourages students to take on the role of a journalist and articulate the process of calculating kinetic energy and potential energy.
- The materials provide guidance for scaffolding instruction and differentiating activities to address areas in which students may need additional support to achieve mastery. Each topic is accompanied by targeted recommendations for assisting SPED, ELL, and RTI students, conveniently located at the end of the chapter in the teacher textbook. For example, in the work/energy section, the Teacher Edition suggests that ELL students can benefit from creating dual language vocabulary cards. Furthermore, the materials also provide a Misconception section and a Vocabulary section devoted to ELLs.
- The resource offers guidance on implementing scaffolding activities to support students who have not yet attained mastery of the material. The TEKS units are designed with a progression of activities that build upon one another.

Materials provide enrichment activities for all levels of learners.

- The Teacher Text features an Enrichment Activity section designed to engage all students in each unit. In Unit 7B, there is an activity that encourages students to take on the role of a journalist and explain the calculation of kinetic energy and potential energy.
- The materials offer enrichment activities that accommodate learner variability. In the teacher textbook, there are specific enrichment activities provided. For example, in the work/energy

section, one of the enrichment activities is to “select a system of your choice and model the work done.”

- Each of the TEKS units includes a section titled Enrichment Activity for All Students, which provides an enrichment activity without differentiation for students at different levels. The materials also provide an enrichment section in general for students without further differentiation.

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

- The materials include “Help Videos” that align with specific TEKS and are designed to support all students when they struggle or become stuck. For example, Lesson 7E has a “Help Video” with audio where the instructor breaks down calculation of momentum and provides practice questions for students to work on, then provides rationale for the correct answer.
- The materials include “Key Questions” the teacher can pose during each “Student Task.” For example, in the lesson for “TEKS 5B,” callout boxes provide the teacher with “Key Questions” for each “Student Task.” Questions such as “What is Pythagorean theorem?” and “What is a vector?” to help guide student learning before students learn about magnitude and direction of displacement in motion in one dimension.
- The materials provide “Extension Work” to support students who are ready to accelerate their learning. For example, the lesson for “TEKS 5F: Calculate the effect of forces on objects…” states that students should “A car with a mass of 1000kg is parked stationary on a hill with a 25 degree slope. Draw a free body diagram to represent the forces acting upon the car and calculate the frictional forces preventing the car from rolling down the hill.
- The “Horizontal Alignment Chart” includes a section titled “Just In Time Information.” This section identifies just-in-time learning acceleration opportunities for students within the content TEKS. The *Teacher Program Guide High School* states, “Teachers will note that just in time learning is available by allocating student access to the relevant style of content they require. The *Teacher Program Guide High School* states, “Teachers will note that just in time learning is available by allocating student access to the relevant style of content they require. For example, students have access to their online textbook and can link into the Alaska suite of products or into the interactive software tool.” For example, the just-in-time learning information for Lesson 5C includes “Student Focus Tutorials PHYS TEK 5C.”

Indicator 7.2

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

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

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- The materials provide a range of developmentally appropriate instructional approaches. In Unit 7C, the instructional approaches include a starting discussion on energy transfers, review notes from an earlier unit, analyzing a slide, a teacher-led lecture on the work-energy theorem, creating energy transfer diagrams, reading and summarizing expository text, constructing diagrams, calculating efficiency, drawing energy transfer diagrams, explaining wasted energy, measuring efficiency through a ball drop experiment, and solving problems.
- The materials engage students in mastering the content by employing a variety of instructional approaches. These include using help videos to provide additional support and guidance, designing a car to explore concepts related to the car's crumple zone, solving real-world work problems, and incorporating other interactive activities.
- Each of the units offers a diverse range of engaging activities, typically consisting of at least five different options for student activities, some of which are done in whole groups while others are done in small groups or with partners, for students to actively interact with the materials and concepts. Specifically, in the unit based on Work, students do practice problems requiring calculations, defend their thoughts by defining vocabulary for other students, and create graphic organizers.

- The materials incorporate a model-revision strategy that facilitates the integration of concepts and evidence acquired throughout the study of the electromagnetic spectrum. This strategy is implemented through a comprehensive background and expository section, which is further reinforced through engaging demonstrations. By revising their initial models, students are empowered to construct a more accurate and refined understanding of the unit's content.

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

- The materials include guidance that supports flexible grouping. For example, in a lesson on 1G, the teacher provides whole group instruction on different types of models. Students then work individually to create a physical or conceptual model of their chosen topic related to the lesson. Students then break into small groups to teach each other their models.
- The materials provide flexibility and a variety of instructional groupings. For example, within the "Teacher Textbook - Physics," in "TEKS 6A Starter/Hook," students enter the room individually or in pairs to observe two statically charged balloons repelling one another. The teacher begins a whole group conversation on repulsive forces between the balloons that must be larger than the gravitational forces of attraction between the balloons. Then, students are given ICT resources and the opportunity to research electric fields individually before another whole group discussion to introduce Coulomb's law.

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

- The materials incorporate varied practice opportunities. In the work/energy section, the lessons feature explicit direct teaching to provide clear instruction. Following the instruction, students independently practice solving work problems. Additionally, a lab investigation is included to engage students in collaborative practice. This combination of practice types enhances student learning and application of concepts in the work/energy section.
- In each unit, a series of learning activities are provided, which typically begin with guided practice and then transition into independent work for the students. Materials provide completed examples for students as well as partially completed and uncompleted problems to test for mastery. Lessons show varied types of practice from modeling to independent practice, many activities involve lecture/slide presentations.
- Materials provide minimal guidance and limited structures for effectively implementing independent and collaborative work. All guidance for the lesson is related to ELL/ESL, Special Education, and RTI, and not related to the implementation of the varied modes of practice. Student Tasks provide teacher background and lesson checkpoints multiple times for students to gain an understanding of the materials. Some sections provide multiple types of practices in problem-solving. For example, Lesson 5B covers vector resolution. The lesson starts with the teacher modeling the process, then the students solve some in guided practice, and the lesson culminates in independent practice.

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

- The visuals in the materials accurately represent the diversity of the school community, ensuring that students from various backgrounds can feel represented and included. In Unit 8A, for example, there is a photo featuring a Hispanic man and his daughter, showcasing diverse familial relationships. Additionally, the expository text in the materials illustrates the right-hand rule using depictions of individuals with different skin tones, promoting inclusivity and cultural representation. Furthermore, the materials introduce students to a diverse group of famous scientists in each unit. Icons such as Isaac Newton, Marie Curie, and George Washington Carver are among the many scientists depicted in the text.

- In the work/energy section of the student textbook has a document titled "Named Scientists" included, which features a variety of scientists along with their photos and short biographies.

Indicator 7.3

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

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

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- Materials list the ELPS in the *Teacher Program Guide High School* and note that the content of program components is intended to align with both TEKS and ELPS for each grade level. The Program Components section lists ELL support as a feature of each lesson in the *Teacher Textbook* and provides examples of excerpts from grade-level lessons. These excerpts indicate that the generic guidance to support ELL students within lessons does not correspond to language domains or proficiency levels. This overview document lacks further information on guidance for linguistic accommodations commensurate with various levels of English language proficiency as defined by the ELPS.
- Materials include guidance for linguistic accommodations under the "How to Help ELL/ESL Students" header at the end of each lesson in the Teacher Textbook. The *Teacher Program Guide High School* states that this section only includes information for teachers to assist ELL/ESL students in delivering the specific lesson plan content. The arrowed box states, "Science language master is vital. Have students list the keywords from the TEKS and create their own picture glossary review cards. Ask students to use the words in sentences and resolve any misconceptions. Add to the science word wall for the classroom and maintain it throughout the school year."
- While the materials have an "ELPS Activity" section in addition to the "How to Help ELL/ESL Students" section, they are not commensurate with various levels of English language proficiency as defined by the ELPS. For example, in the Analyzing Motion lesson, the activity

states, “Encourage students to read linguistically accommodated content area material with decreasing need for linguistic accommodations as they learn more English.”

- Guidance in the “How to Help ELL/ESL Students” further states to “use Archway, a phonics program provided in the Online Library,” and “have students complete the RTI activities.” The materials include teacher guidance for communication with emergent bilingual (EB) students using online resources with the goal of creating comprehensible input. Teachers have access through the online library to Archway, which is a phonics program to help whole families arriving in a school district learn to read, write, and speak English in a short period of time. For example, in TEKS 5A, there is a recommendation for students to work in mixed-ability groups and complete the activities provided in the RTI section. The RTI suggests using vocabulary cards and watching an eighth-grade intervention focus video.
- Additionally, in the context of TEKS 5C, there is an ESL statement advising teachers to encourage students to seek assistance from peers, teachers, friends, and guardians. However, the only observed strategy was the creation of a word wall. While these activities as a whole meet the needs of students at all levels, they do not provide linguistic accommodations that are 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.

- Throughout the program components, materials encourage the use of students’ first language and use it as a means for linguistic, affective, cognitive, and academic development in English. Materials primarily offer guidance on native language use through mentoring, translations, and the Spanish glossary.
  - The materials encourage strategic use of students' first languages for academic development in English. For example, TEKS 4A suggests involving another student proficient in the students' language in a small group.
  - In TEKS section 4A, the materials suggest assigning a mentor who speaks the student's first language as a way to support ELL/ESL students.
  - For example, in the online library, teachers have access to a blackline master section with a Spanish glossary to support students who speak Spanish with translation.
  - For example, materials provide suggestions for working with ESL/ELL students; for example, the Teacher Text states, “If possible, have students work in collaborative groups where students share the same languages, and ideally, one student is advanced in English. Use visual and tactile models to illustrate elements of each activity and focus on the keywords. You can have students create a journal of words in their first language and in English.”

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Indicator 7.4

Materials provide guidance on fostering connections between home and school.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials include a “Family/Caregiver Guide: High School” that informs caregivers about the program's design. For example, the materials provide a program introduction section that includes sections on “philosophy of science teaching and learning,” “research-based strategies,” and “family support.”
    - The “Philosophy of science teaching and Learning” section includes information from the program about the importance of teaching science. For example, the materials state, “Whether or not a student pursues a science-related career, they will continually confront scientific arguments, advances, and associated technologies in their daily lives.”
    - The “research-based strategies” section includes information from the program about the pedagogy used in the science classroom. For example, this section states, “Research shows how a sense of belonging in rich and rigorous classrooms is directly correlated to student's long-term academic success.” (Marten 2022) and “Students learn best by doing.”
- The “Family Support” section includes information from the program about how “parents/caregivers can help enforce some of the requirements of the TEKS at home.” The program includes a “Family Guide” for each science course, including chemistry.

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

- Materials provide resources and strategies for caregivers to help reinforce student learning and development. In the Parent/Caregiver Program Guide, there is a dedicated section called Family Support. This section provides guidance for parents on reinforcing the TEKS objectives. It illustrates the example of TEKS related to safety and demonstrates their alignment across different grade levels.
- The Teacher Program Guide communicates the importance of parents/guardians in helping enforce the TEKS at home. It states how parents/guardians can apply TEKS to everyday life at home and the importance of safety. For example, regarding the safety TEKS, it states, “In high school, it is still vital that students wash their hands. We ask that you discuss washing hands each and every day. Following the events linked with COVID-19, everyone understands the importance of cleanliness.”
- The materials provide at-home activities for caregivers to support student learning and development. For example, in the Family/Caregiver Program Guide, caregivers are instructed to review new terms and definitions with students at home and explore their practical applications in their daily lives. The teacher textbook mentions that Archway is available in the online library for students to work in pairs to read, write, and speak about physics in English.
- Most TEKS units include a Homework section that provides students with assignments to work on outside of school. For instance, in TEKS 1.5, the homework involves students creating a scientific investigation of their choice. These assignments are available in the student textbook, which caregivers can access using the student's login credentials.

Materials include information to guide teacher communications with caregivers.

- In the *Online Library - HS Teacher Support*, materials provide the Science Report Card as a teacher resource. This resource includes the following guidance for teacher communications with caregivers: “Please fill in the parent comment section so that we can work together to monitor your child’s progress.” The Science Report Card contains rows and columns for teachers to communicate student progress toward mastery of science and literacy standards according to four levels: Novice, Intermediate, Expert, and Not Yet Introduced.
- Materials include teacher guidance for communicating with caregivers in the *Family/Caregiver Guide High School*. This guidance includes advice for building relationships and sharing digital resources. For example, materials share the free online materials caregivers have access to. Stating, “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 *Teacher Program Guide High School* offers additional information to guide teacher communication with caregivers, including suggestions for engaging caregivers as partners in the student’s education. For example, materials state that parents/caregivers can help master the TEKS at home by “assisting students studying new TEKS content and explaining how it applies to home life” and providing “practical assistance with safety measures.”

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 and scientific and engineering practices.	M
3	Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.	M

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials provide a scope and sequence that includes the corresponding TEKS for all units in the Scope and Sequence. The scope and sequence can be accessed through multiple platforms: via the Online Library - HS Teacher Support and the Teacher Textbook. The scope and sequence contain detailed lists and explanations of each standard and hyperlinks to when and how they are covered in the textbook. For example, Unit 1: Analyzing Motion covers TEKS 5A along with many from TEKS 1-4 and includes the page number and provides the guidance of four 50-minute class periods.
- Prior to Section 1 in The Teacher Edition, the materials provide a calendar view of each month's scope and sequence with teacher guidance and color coding. For example, the November calendar page shows the days for teaching Core Area 2 in green, and the holidays for Veterans Day and Thanksgiving are shown in pink.
- Instructional materials provide a pacing guide after the forward that lists the purpose and student objectives for each topic. For example, Unit 3 - Series and parallel circuits states, "The purpose of this unit is to analyze, design, and construct series and parallel circuits using schematics and materials such as switches, wires, resistors, lightbulbs, batteries, voltmeters, and ammeters."

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

- The materials provide teacher clarity in helping students understand how activities and experiences connect concepts with background information to associate concepts with real-life situations, such as circular motion and satellites revolving around a planet.
- The units provide a Research History section in every unit that connects the current topic to historical examples. For example, in the Mechanical Energy lesson, the Research History topic is the design of the pendulum. The materials state, “The pendulum is a fantastic and simple example of the conservation of kinetic energy to potential energy (and vice versa) in a system.”
- In each of the units in the teacher’s edition of the book, there is a Learning Activities section that provides guidance on what activities can be conducted to facilitate connections to the core concepts of science. For example, in the Work and Power Unit, there is a full page of teacher guidance for starters/hooks, student tasks, and helpful information on prerequisite knowledge students should use to answer questions such as “The questions become progressively harder as the table is descended. Students will require the use of scientific notation for the harder questions.”

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

- Instructional materials provide opportunities for students to review and practice knowledge and skills through the Assessment Generator located in the Online Library - Physics. For example, the assessment generator allows the teacher to choose current and previously taught TEKS to be included in a particular assessment.
- The materials include intentional practice and spiraling of previously taught knowledge and skills and current lessons’ science knowledge and skills. Every lesson incorporates a section focused on prior knowledge, allowing students to connect their new learning to previously gained knowledge and concepts, reinforcing the spiral learning approach. For example, in Lesson 5G: Newton’s Third Law, the content revisits TEKS 5B, 5C, 5D, 5E, and 5F.
- The early units in the teacher guide focus on the skills the students need to master to be successful, such as scientific practices in investigations, collecting and analyzing data, and developing and using models. These skills are spiraled and practiced throughout the entire course, which can be evidenced by the links in the scope and sequence. Each lesson also includes a boxed section titled “Skills Developed in this Lesson,” which bullets the specific skills being taught or spiraled. For example, in the lesson for Motion in One Direction, the skills listed include rearranging equations, making accurate measurements, numeracy skills, and research skills.

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, which explain the standards within the context of the course.	M
3	Materials include a comprehensive list of all equipment and supplies needed to support instructional activities.	M
4	Materials include guidance for safety practices, including the course-appropriate use of safety equipment during investigations.	PM

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 standards correlations, including cross-content standards, which explain the standards within the context of the course. Materials include a comprehensive list of all equipment and supplies needed to support instructional activities. Materials include some guidance for safety practices, including some of the course-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 Program Guide includes instructions for course components, student activities, and online libraries. The teacher's textbook has a section in each lesson that details strategies for reaching diverse learners. Furthermore, a range of Research-Based Instructional Strategies (RBIS), such as creating picture glossary extensions and enrichment activities, are readily accessible throughout the year for all topics.
- The resource consists of slides for all units that align with the Teacher Program Guide. For example, the Teacher Program Guide offers guidance on when and how to use the resources effectively, addressing anticipated student questions and providing corresponding answers.
- The Teacher Program Guide provides clear teacher explanations on how to utilize the resources and includes assessments that are integrated into the course. The materials feature an Online Library that offers clear explanations and addresses common questions to support parents in assisting their students.

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Materials include standards correlations, including cross content standards, which explain the standards within the context of the course.

- The STEAM into Physics TEKS correlations and ELPS correlation documents provide explanations of the standards within the course's context and highlight the specific lessons where TEKS and ELPS are utilized and demonstrate their practical application. The ELPS Correlation guide connects the material covered in different units to the ELPS strategies featured within each specific unit.
- The materials feature science standards correlations that align with the topics covered in the STEAM storybooks. Moreover, cross-content standards for reading and writing are provided alongside the STEAM storybooks and online student journals. The activities within the STEAM storybooks encompass a wide range of disciplines, including reading, writing, art, math, and engineering.
- The lessons provide teachers with background information to create opportunities for students to explore cross-standard information within broad topics. The workbooks contain cross-curricular activities accompanied by a key that identifies the specific curriculum being assessed.

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

- The materials include the STEAM Science Kitting/Materials List - Physics, found in the Online Library HS Teacher Support. The list provides a comprehensive inventory of all the materials and equipment required for instructional activities. The list contains approximately 70 items that range from ball bearings and photogates to a rubber duck and a bowling ball with hooks.
- Materials include the *CeMast Engineering Prof Development Teacher Book,* found in the Online Library - High School Engineering section. The CeMast project involves designing an electric vehicle, and the materials required for the entire project are listed at the start of the engineering activity for easy reference. Some of the materials needed include a tablecloth, metric ruler, brass fasteners, and clay carving tools.
- Section 1 of the Teacher book, Addressing TEKS 1A-1H, includes a subsection titled "Scientific Tools and Equipment." The Teacher Background section provides a list of equipment that students will be using and need to become familiar with in the course.

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

- The materials reference the Texas Science Safety Standards in the Planning Investigations document. This document is in the Online Library - Student Reasoning Library - Scientific Investigation and Reasoning Handbook. The document states, "Safety information is vital for all types of investigations. Teachers can review and apply/have students apply classroom, laboratory, and field investigation requirements by viewing and applying the Texas Safety Standards."
- The Online Library - Enrichment contains the Real Science - High School Teacher Edition, where activities include safety procedures. For example, in the activity titled "The Burning Question," the procedures state, "Review safety procedures and follow all requirements when mixing and heating chemicals. Be sure all students know how to handle the Bunsen burner safely, follow all safety procedures, and wear protective gear." However, materials do not consistently provide

specific safety practices guidance for teachers to follow during investigations throughout the course.

- Curriculum materials include some student guidance for identifying safety practices. Learning activities state that students should be reminded of Texas Education Agency-approved safety standards, perform a risk assessment, and use appropriate safety equipment for all investigations in this course. Guidance is generally given to students through the "Risk-Assessments," where students are asked, "What chemicals are we using? What hazards are associated with these chemicals?" Although there is general guidance for students, there is no guidance for teachers.

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 Scope and Sequence document outlines the duration of each instructional unit, specifying the number of class periods and minutes allocated to each. For example, 50 minutes is allocated to complete TEKS 1C.
- The Teacher Textbook has each lesson separated by TEKS. The “Pacing and Class Information” at the beginning of each lesson provides the timeframe to complete the lesson. For instance, Newton’s Third Law should take one 50-minute session to complete the Starter/Hook, Student Tasks, and Plenary in order to demonstrate mastery.

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

- The Pacing Document suggests an outline for each core concept to be covered on a weekly basis in a comprehensive plan for implementing the curriculum over the course of a year. Suggestions for teaching, assessing, and reteaching topics are delineated by the core concept with a calendar.
- The Scope and Sequence provides a map of the core curriculum, which progressively builds topics throughout the year for strategic implementation, such as using scalar and vectors to teach distance and displacement, followed by instruction in speed and velocity.
- The units in this resource are purposefully organized into main concepts that progressively build upon one another. These modules have similar recurring themes, making them more comprehensive for students. For example, introduction to motion, motion in one direction, motion in two dimensions, and Newton’s Laws are all grouped into one core concept.

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

- The materials guide gives a sequence of learning activities within the "Learning activities" section in the “Teacher Textbook.” Teachers are provided with detailed lesson plans that include teacher background, lesson objectives, keywords, prior knowledge, expository text for students, learning activities, and homework. The Teacher Program Guide provides information about personalized services for the teacher. The materials state, "Our team will assist you in amending the plans, should you have special requirements for individual students.
- The Teacher Program guide states, "By using the assessment tools teachers can assess student comprehension daily and the sequence of lessons and pacing can be adjusted to suit individual classes."
- A calendar is provided in the Pacing/Year Plan for the 2024 school year. This allows teachers to view how to complete the course within one school year.

Indicator 9.1

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

1	Materials include an appropriate amount of white space and a design that supports and does not distract from student learning.	No
2	Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting.	Yes
3	Materials include digital components that are free of technical errors.	Yes

Not Scored

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

Materials do not 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.

- The actual text pages in the digital text appear to have an appropriate amount of white space. Students can read the text in either single- or double-page mode on the screen. Single page mode allows for the text to be larger and in the center of the screen, and the student can scroll down through the pages. In double page mode, the text shows two pages simultaneously and the student can "flip" through the pages similar to a real book.
- Student materials are not designed in a way that supports distraction free learning. The student must constantly navigate to different tabs and pages to access labs, activities, and assessments. This design is difficult to navigate and distracts from student learning. For example, in the student textbook, there are no hyperlinks to labs, engineering activities, or any other resources. The student must return to the home page and open another window to access a lab, make an assessment, or pull up the Blackline slides. The student must continue to return to the homepage and open and search for what is needed. Students must switch between tabs to access the content.
- . Student materials generally incorporate an appropriate amount of white space and a design that does not distract from student learning. To distinguish sections from each other, titles and headings are prominent and clear; sections are marked with subheadings, and content is labeled appropriately.
- Student materials incorporate an appropriate amount of white space and a design that does not distract from student learning. To distinguish sections from each other, titles and headings are prominent and clear; sections are marked with subheadings, and content is labeled appropriately. To distinguish sections from each other, bold lettering is used for every new title, making it easier for students to identify different sections, such as Key Vocabulary, Background Information, and Learning Activities.

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

- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. In Unit 6B+C, there are diagrams illustrating fields through solenoids and pictures depicting electromagnets. These visuals are thoughtfully chosen and aid students in visualizing and understanding the concept of fields.
- The materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, when covering TEKS 5G and 5H, the images include a swimmer kicking off from the back wall of a pool, a person getting hit with a soccer ball, and a photo of a water rocket. These are excellent examples illustrating Newton's Third Law of Motion.
- In TEKS Section 1E and 1F, several pages are dedicated to displaying different images of various types of graphs, charts, and diagrams. For example, there is a colored periodic table showcasing communication in science, a table showing SI prefixes, and labeled particle diagrams showing the phases of matter.
- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, TEKS 6B+C provides images of gravitational and electrical fields to demonstrate different forces.

Materials include digital components that are free of technical errors.

- The materials are free of spelling, grammar, and punctuation errors. For example, the student glossary is free of spelling errors. Materials are also free of wrong answers to problems, as seen in the student's textbook.
- The materials include digital components that are free of technical errors. Once the digital pages are loaded, and the reader zooms in to read the text, there is no evidence of inaccurate content or information within the student and teacher books.

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

Not Scored

Materials are 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 do not integrate digital technology in ways that support student engagement with the science and engineering practices and course-specific 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 materials integrate technology and tools that support student learning and engagement. The materials include digital access to components and online assessments and tutorials, digital technology, and tools.
  - For example, student digital components include a digital journal where answers to questions in the task activities can be written, homework can be completed, and vocabulary notes can be taken.
  - The materials offer an Interactive Online Assessment Tool that provides students with TEKS-focused questions. The tool prompts the student to answer a question, provides answer choices, and then provides feedback to the student. The feedback informs the student of the correctness of their answer choice.
  - The materials include the Online library and NEST Family Videos, where teachers and or students can watch and discuss movies that provide information about the lives of famous scientists/engineers. For example, the NEST Family Video - The Wright Brothers (sample) provides a brief video about the Wright Brothers and their role in creating the first successful flight.
  - The materials provide digital slides that align with the Student Tasks in the Teacher and Student Physics Textbooks. For example, the Online Library for Physics includes High School Physics Slides for each unit, and the slides for Unit 6 include several images of charges and forces followed by questions. The Student Tasks for TEKS 5D integrate with

the digital slides for Unit 5. The Teacher Textbook for Student Task 1 states, "Students attempt to answer the circular motion questions on slide 5 and/or the circular motion equations presented in the expository text."

Materials integrate digital technology in ways that support student engagement with the science and engineering practices and course specific content.

- The "High School Physics Slides" support student engagement with science and engineering practices (SEPs) within the SEP lessons (TEKS1-4). For example, the online textbook lesson for TEKS 4C includes student tasks that support engagement with science and engineering practices, such as researching and communicating ideas and connecting the lesson to the slides. The materials state, "Students explore the online platforms and evaluate their educational value and for information on STEM careers. Slide 2 contains a template they can use during their evaluation. The list of online platforms on slide 3 is just a range of suggestions that the teacher can add to." Lesson 4C is a lesson in which students are given the opportunity to explore and evaluate a wide range of online platforms for future use in the course. In this book, there are multiple opportunities for students to research using ICT facilities where these platforms can be used.
    - While this activity integrates digital technology that supports student engagement with science and engineering practices, any of the activities that integrate science and engineering practices come from the SEP lessons, which do not have course-specific content.

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

- In the digital materials, there are different activities for the students to do that have opportunities for the students to collaborate with each other in the classroom; however, none of those resources use digital technology to help facilitate those collaborative interactions.
- Materials do not integrate digital technology that supports teacher-to-student collaboration. No teacher-to-student digital collaboration was found in the teacher textbook, assessment generator, or high school physics slides.
- Materials mention collaboration between students and teachers for learning through the Archway, but the materials provided are in an online book and not digital technology where the teacher and students can interact in real-time.

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

- The materials do not integrate digital technology that is compatible with a variety of learning management systems but do note that all digital materials are accessible via any computer or mobile device with the internet. The materials recommend internet use for much research-focused activities in student-facing materials.
- The *Teacher Program Guide High School* states that digital technology within the materials is compatible with Clever but does not mention other learning management systems.

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Indicator 9.3

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

1	Digital technology and online components are developmentally appropriate for the course and align with the scope and approach to science knowledge and skills progression.	No
2	Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.	No
3	Materials are available to parents and caregivers to support student engagement with digital technology and online components.	Yes

Not Scored

Digital technology and online components are somewhat developmentally and course-appropriate and provide some support for learning.

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

- The materials provide information for related TEKS, SEPs, and ELPS for online and digital components within the Teacher's Guide. This information can be seen at the beginning of each lesson. For example, TEKS 6C provides the standard, skills developed, resources, SMSC opportunities, and pacing and class information at the beginning of the unit.
- Digital technology and online components included in the materials comprise print-based content and resource materials in the Online Libraries and guidance to use the internet for web-based research and resources in student activities. The materials include digital components and tools like a calculator, graphing calculator, scientific calculator, unit converter, and whiteboard to assist students in science instruction. The materials also include information about coding tools and data analysis platforms in the Teacher's Guide.
- Although the materials do not provide developmentally appropriate digital tools and online components.
    - Digital components are not aligned with the Physics Course. For instance, the "Learn by Doing Activity Readers" are designed for K-8 students and are not available at the high school content level.
    - The materials include a "Student Reasoning Library - Scientific, Investigation and Reasoning Handbook" that includes reasoning guides for Forensic Science and grades K-8 but does not include Physics.

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

- There is no evidence of embedded technology, such as links to other resources within the text, simulations, animations, videos, interactive problems, interactive web pages, etc.
- The materials do not provide support for teachers to integrate the technology within the program successfully. Materials provide some clear instructions and tutorials within the teacher platform on how to use the embedded technology. The Teacher Program Guide High School advises teachers to use the videos. However, in another example, the How to Use the Program Guide instructs users to first read the one-page guide, followed by the teacher textbook introduction, and then review the scope and sequence. In addition, the materials lack step-by-step instructions for setting up and using the technology, as well as troubleshooting tips for common problems that teachers may encounter.
- The materials include a video on how to set up the assessment generator tool; however, the video fails to address how that technology could be used to support or enhance student learning.
- The teacher guide includes images and instructions on how the materials could potentially work; however, there is limited guidance on how these components enhance and support student learning.

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

- Materials are available to parents and caregivers to support student engagement in online components.
    - For example, the *Family/Caregiver Guide High School* states that teachers and caregivers should communicate so that digital access to the curriculum is provided for the student at home. Materials provide caregivers with access to online resources, including but not limited to homework, TEKS and ELPS correlations, glossary cards, and digital textbooks. This document allows parents and caregivers to support student engagement with online tools like the Intervention Focus Tutorial.
    - For example, materials provide an e-letter that provides online access to materials, resources, and activities to reinforce student learning and development.
    - For example, materials provide access to NEST family videos to support learning at home.