RPA TREKs Grade 5

RPA TREKs Grade 5 Executive Summary

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

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

Section 2. Instructional Anchor

- The materials are somewhat designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.
- The materials somewhat 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 somewhat designed to build knowledge systematically, coherently, and accurately.
- The materials provide some educative components to support teachers' content and coherence knowledge.

Section 4. Productive Struggle

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

Section 5. Evidence-Based Reasoning and Communicating

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

Section 6. Progress Monitoring

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

Section 7. Supports for All Learners

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

Section 8. Implementation Supports

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

Section 9. Design Features

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

Section 10. Additional Information

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

RPA TREKs Grade 5

Indicator 2.1

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

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

Partial Meets | Score 2/4

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

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

Evidence includes but is not limited to:

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

- Materials provide some authentic opportunities for students to develop, practice, and demonstrate mastery of grade-level SEPs. The program and activities are entirely digital; students are not required to use physical tools or equipment to investigate concepts. Instead, students make observations of photos and simulations to gather data. Students are provided.graphic organizers and data tables. Most sections require students to complete graphic organizers and data tables. There are several segments that involve the review of data to complete graphic organizers, such as a data table or graph data. Students do minimal construction of data tables. Students use a model of the processes of compaction, deposition, and weathering that result in the formation of sedimentary rocks in TREK 5.10B. Students are not required to develop models in the program as it is an online-only resource.

- The materials provide some opportunities to develop grade-level appropriate scientific and engineering practices, as outlined in the TEKS. In TREK 5.12A Interdependence PRACTICE A, students analyze a simulated investigation of plant growth. Students do not design or conduct the investigation. Students use simulated experimental investigations to collect and analyze data. For example, in 5.7B Forces & Experimental Design PRACTICE A, students collect and analyze data in a simulated experimental investigation to answer the research question, "How does changing a balloon rocket's trajectory angle affect the distance traveled?" Students do not plan and conduct descriptive investigations using tools. The updated TEKS state in 5.1 (F) students will develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem, but materials do not use the updated standard language. Students investigate how changing the angle of the trajectory of a balloon rocket changes its trajectory by observing a diagram of a balloon rocket and several data tables. In the Digital Student Journal, students complete multiple drag-and-drop activities while also having the option to design, conduct, or analyze their investigation. At the end of the investigation, materials provide a conclusion and state on the student slide, “The data did not support this hypothesis. What should you consider at this point?” Materials offer an optional STEAM project for students to blow air into balloons and place fins on the balloons. Materials state, “If you make this with actual materials, play around with the fin designs to test how they might affect how the rocket flies.” While students can connect fins to a balloon if they complete the optional project, they do not develop a model to show a relationship or prototype for a solution to a problem.
- The materials provide mostly simulated opportunities to practice grade-level appropriate scientific and engineering practices as outlined in the TEKS. For example, in 5.6AD Physical Properties of Matter Practice A, students collect and analyze data in a simulated descriptive investigation to answer the question, "Which household material is most useful to insulate thermal energy?" Students use the evidence provided in a bar graph to type in temperatures in different materials. In Practice B, students read procedure manual entries on materials to help answer, "How are materials separated based on their physical properties?"
- The materials provide some opportunities to show mastery of grade-level appropriate scientific and engineering practices. For example, in TREK 5.7B, materials provide students with a short narrative text about a student who has a friend who cannot access entrances the same way as other students. The two friends plan to find which wheelchair will be best for mobility. Materials provide research for the students and then three different tests to determine how mass affects the force of the wheelchairs in different situations. The student slides then explain the already-completed engineering process and ask students to fill in the blank to show mastery.

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

- The scope and sequence includes specific information about when recurring themes are introduced but not when they are spiraled back into the lesson. For example, in TREKS 5.6BC, 5.7A, and 5.10A, there are no RTCs listed in the overview. Other times they are listed and actively referred to in the lesson. For example, in TREK 5.8A the RTC is interdependent amongst parts of a system. In the Apply section of the lesson, which is focused on energy transformations, students explore different systems that result in energy transformations including a wood stove system and a water heater system. The materials specifically refer to the parts of the system and interdependence.

- For example, the Matter and Energy strand contains two TREKs (5.6AD and 5.6B); however, only one RTC (Use scale, proportion, and quantity to describe, compare, or model different systems) is listed in the Overview of 5.6AD in the TREK. Within the activity, students type in the temperature of several materials using information from a simple bar graph. Materials specify to students in the Digital Student Journal how they are using the RTCs.
- Materials provide minimal connections of RTCs amongTREKs. The same RTC is used two more times in the program and while it is connected to the concepts within the TREK it is not connected to the other concepts referred to in other TREKS.

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

- The materials contain a strategic design for developing students' content knowledge and skills, and the materials do employ a systematic design within each TREK. The materials provide a Scope and Sequence with Interleaved Practice to guide teachers in the implementation of the material. Each TREK can be used in any order. TREKs list many SEPs and some RTCs in the Overview; and students complete simulated or optional self-created hands-on investigations to develop an understanding of grade-level knowledge and skills.
- The materials strategically (long-term goals) develop students' content knowledge and skills appropriate for the concept and grade level as outlined in the TEKS. Materials provide an Interleaved Practice that requires students to actively retrieve and apply knowledge from memory, fostering long-term retention and transfer of learning. In 5.10A Water Cycle & Weather Overview Practice A details that students will "Use weather data to find evidence of a weather cycle (land/sea breeze circulation) and engage with a diagram of the cycle. An optional STEAM extension involves adding elements of the water cycle (clouds and rain) into a diagram of a land breeze circulation." Materials provide pictures and simulation as well as sometimes offering optional hands-on investigations or activities for students to develop an understanding of the concepts.
- The materials utilize the same design within each TREK–Recall, Practice A, Practice B and Apply. This systematic design allows students to develop some content knowledge and skills within a given TREK. The materials state that each TREK is, "Steeped in research, and the Recall-Practice-Apply (RPA) framework is designed for interleaved practice." The RPA framework repeats throughout every TREK, and contains activities in which students complete a myriad of tasks, including entering data, constructing conclusions, problem solving, and drag-and-drop activities. It also mirrors hotspot, short constructed response multipart and multistep questions The retrieval and retention tasks are consistent and make use of scientific and engineering processes.
- The TREKs often ask open-ended questions to gauge student thinking. For example, in TREK 5.6A Recall portion, students read a brief passage, check vocabulary understanding, complete a bubble map, and practice measurement, comparison, and classification skills (by dragging and dropping terms to pictures). Students then complete a brief reflection on what they knew about the terms up to the present. Later in the TREK, students encounter diagrams and text that develop some of the concepts from the Recall section, such as physical properties and relative density.

RPA TREKs Grade 5

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

- The materials provide some opportunities for students to ask questions and plan and conduct investigations. Materials provide students with predesigned investigations in which students make observations based on reading and information provided. For example, in the 5.12B TREK, the What's Happening picture displays a picture of a plant with roots growing around the planter. Students make observations about what they see. Materials provide an opportunity for students to ask questions about the phenomenon in the What Is Happening section. While the materials do often offer the option for students to design their own investigations, this is usually optional and is dependent on students having the materials necessary to complete the investigation as a scientist would. The optional nature of developing and conducting investigations would not qualify as "sufficient opportunities."
- Materials utilize simulated investigations for students to apply their knowledge and skills; however, the student tasks related to the simulations do not include opportunities for students to problem-solve, to make connections across disciplines, or develop an understanding of science concepts. For example, in TREK 5.6B, students identify if combined substances are a mixture or a solution based on properties. They compare and contrast mixtures and solutions on a Venn diagram. Next, they analyze a data table to explain the relationship between temperature and solubility. Students use a data table to explain what happened to the powder and water after mixing it. Students can analyze data and draw conclusions. Materials generally lead students through the problem-solving process rather than students carrying it out themselves, and then students answer questions to check for understanding and application.
- The materials provide some opportunities for students to engage in problem-solving to make connections across disciplines. For example, students complete a math task in a Matter TREK by calculating the initial mass of a 500 ml beaker when provided the added substance amount and total mass in a data table when analyzing the conservation of mass. While this task involves math, students are not engaging in problem-solving or making explicit connections between science and math. In a Mixtures and Solutions TREK, students complete an ELA-related skill when they use text evidence to justify a claim about what happened to a drink mix when added to water. Students explain the statement, "A solution is a mixture, but a mixture does not have to be a solution," using newly-acquired vocabulary. While the cross curricular connections are there, there lacks connections across disciplines to help students develop a deeper and more holistic understanding of science as a complete, interconnected field of study.

RPA TREKs Grade 5

Indicator 2.2

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

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

Partial Meets| Score 2/4

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

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

Evidence includes but is not limited to:

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

- Materials embed some phenomena and problems, but materials leverage phenomena throughout the program as a "hook" to gain student interest in the science concept. Materials state in the overview that the phenomenon within each TREK is an "attention-getter" that can be used as either a cooperative learning strategy for engagement or as an individual reading opportunity to activate prior knowledge.
- While the embedded phenomena support students in activating knowledge, students do not use science and engineering practices through the lens of recurring themes to develop explanations for phenomena. Materials present phenomena using photos, such as a pool cue poised in front of a ball on a pool table, a magnified image of a circuit board, and a bear with a fish in its mouth at the beginning of each TREK. Materials prompt students to describe what they see, think, and wonder when looking at the photo. Students are guided to use qualitative and quantitative terms, formulate questions, and develop their own explanations about the phenomenon. Students do not explore, investigate, or apply any SEPs or RTCs to explain the phenomenon. Students do not explore, investigate, or apply any SEPs or RTCs to explain the phenomenon.

- Materials provide limited opportunities for students to develop, evaluate, and revise their thinking as they figure out phenomena and solve problems. Students are able to reflect on their phenomenon and apply their new learning in the final slides. Materials do not provide teacher guidance on how to facilitate or guide students through making sense of phenomena. Students only make observations about the image on the slide; the materials do not explain the connection of the phenomena to the activities they later complete within the TREK. After viewing the phenomenon and reading an explanation, students observe, write, read, answer questions, complete vocabulary tasks, and answer STAAR-like questions. This process does not adequately provide students with opportunities to develop, evaluate, and revise their thinking about phenomena.

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

- The materials provide some opportunities to leverage students' prior knowledge and experiences related to phenomena and engineering problems, ensuring that connections are made to previous science TEKS. In TREK 5.12A, students view a microscopic image of dental plaque and read about how bacteria rely on food, water, and shelter to survive. Following the phenomena image, students recall the basic needs of all organisms in their environment. Students read a short text that includes relevant terms such as *organism*, *producers*, and *abiotic*).
- The materials allow for a common, singular entry point to the learning phenomena. Students all view the same phenomena images. In one TREK, students view a digital image of an estuary where the river meets the ocean. Students can see the muddy river water meeting the ocean. Materials do not allow students to discuss personal experiences related to the phenomena. Later in the Apply section of the same TREK, materials display a digital image of ocean waves on a beach. Materials do not include opportunities for students to communicate their experiences outside the classroom.
- The materials provide information about common student misconceptions about specific concepts within the TREK; however, materials do not include information about potential student misconceptions related to the phenomenon. Each TREK overview contains a Misconceptions area highlighted for the teacher. For example, the Forces and Experimental Design lists misconceptions about forces, such as, "Only Earth has gravity is not true," and "When a moving object stops it is because it runs out of force." The phenomenon includes a photo of a skateboarder on a skate ramp. Materials include misconceptions about the phenomenon in the Teacher's Instructions and the Overview.

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

- Materials provide some teacher guidance about the scientific concepts and goals behind each phenomenon. In Recall, Practice B, and Apply, in reference to the phenomena images and follow-up questions, the answer key states, "There is no correct or uniform answer for these connections. However, students should be able to relate information from 3rd, 4th, and possibly 5th grade to these terms using examples they have either directly observed or learned about previously." The answer key directs teachers to, "Be sure to provide time for students to make observations about the image before moving on to the description on the next slide." Still, the answer does not include specific information about scientific concepts and learning goals related to the phenomenon. For Practice A, students observe, describe, and investigate the

phenomenon then the phenomenon is further reviewed with context after developing explanations. In each Practice A, the material describes the phenomenon and provides an RTC that relates to the phenomenon.

- The materials outline the student learning goal(s) behind some phenomena but not engineering problems. For example, in TREK 5.12C Practice B, a TEK is highlighted, but no further explanation or goal is given except for a Venn Diagram of possible answers. In the student materials, students drag and drop phrases and terms on the Venn diagram. In 5.12 A Practice A, students are provided a phenomenon, and then the teachers are given the Answer Key explaining that students should be able to relate their observations to cause-and-effect relationships and explain the possible causes of plant growth.
- Materials outline the scientific concepts and learning goals behind some phenomenon and engineering problems corresponding to content concepts across the grade level. For example, the TREK 5.6BC Overview lists two bulleted central concepts for mixtures and solutions, "Mixtures are a mix of substances that are the same," and "Solutions are a mix of substances that are different and include a solute." In the Recall section, materials include a close-up image of sand (to show a mixture) but do not explain how the science concepts relate to the phenomenon provided. In TREK 5.12C Practice A, instructions are provided on how the phenomenon relating the phenomenon to 5.5D and providing the description of the interdependence of the self-water plant to drive, “The investigation to examine and model the parts of a system and their interdependence in the function of a system.”

RPA TREKs Grade 5

Indicator 3.1

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

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

Partial Meets | Score 3/6

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

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

Evidence includes but is not limited to:

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

- The materials connect some new learning to previous and future learning within and across grade levels. The materials contain an Overview for each TREK that lists the upcoming TEKS in *Looking Ahead* and previously taught TEKS in *Looking Behind;* however, the materials do not show the connection of past and future TEKS to the activities provided in the materials. The materials only list the objectives to show a connection to future grade levels. Mostly embedded in the Recall and Practice A segments of each TREK, the Overview of each TREK notes the prerequisite TEKS. For example, the Recall segment of each TREK includes vertically aligned narratives and activities relative to content and vocabulary taught in grades 3 and 4. This is recognized in the Teacher Instructions per the Vocabulary Check and Apply Academic Terms sections. The materials do not directly state when the activities apply to previously taught TEKS. For example, in TREK 5.6BC *Looking Behind*, materials list the science TEKS 3.6B, 4.6B, & 4.6C, and in *Looking Ahead*, Middle School TEKS 6.6B, 7.6D, 7.6E, and 8.6A. Materials do not state how content connects to past and future learning from other grade levels. The materials do not provide a vertical alignment or scope and sequence to see the flow of complexity.
- The materials briefly review some content at the beginning of each TREK but do not present content in a way that builds complexity within units. Each TREK contains four segments titled Recall, Practice A, Practice B, and Apply for students to build and connect their knowledge

within each strand. The Recall section reviews some previous learning, but materials do not clarify how it will be carried and built upon throughout the lesson and future lessons. For example, TREKs 5.9A Earth's Rotation includes a Recall where students differentiate between day and night. In Practice A, students look at images to answer questions about the sun changing position. In Practice B, students look at the orbit and rotation of Earth, Jupiter, and Mars. And finally, in Apply, students look at questions about shadows. The content presents information about Earth's rotation. Materials do not state how this information connects to the same overarching concept of Earth's rotation. The four TREK parts do not build and connect knowledge and skills across the grade level, nor do they build in complexity. Each segment stands alone and can be completed without needing to complete the entire TREK because materials allow teachers to assign all or part of a TREK.

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

- The materials include some progression of concrete and then representational before abstract reasoning when presenting concepts that allow for increasingly deeper conceptual understanding. Materials use a Recall, Practice, Practice, and Apply protocol that includes some simulations. For example, in TREK 5.12C, students identify the components of a healthy ecosystem and observe the short and long-term effects of humans. Students Recall how ecosystems work by reading text and then completing vocabulary activities. "Students collect and analyze data in a simulated descriptive investigation" by completing drag and drop activities and writing observations during Practice A. Practice B, students read and reflect over a simulated investigation by writing responses to questions. During Apply, students practice academic terms by dragging and dropping terms, rank fishing methods through drag-and-drop and written response questions, and reading and answering questions.
- Materials are mostly intentionally sequenced to scaffold learning in a way that allows for an increasingly deeper conceptual understanding. For example, TREKs 5.10C Landforms includes a Recall section that includes a slide with a reading on how Earth is changing and provides a slide for students to practice vocabulary but is limited in how it builds on prior knowledge, and there are limited opportunities for students to extend their understanding beyond the focus of the current TREK.
- Materials provide some intentional sequencing to scaffold learning. For example, TREKS 5.10C Landforms Practice A slide 7 Investigation Planning asks students to "actively read a preparation to begin modeling landforms." After students complete a drag-and-drop sorting of the hypothesis and variables, students write Earth's process based on the description of the effect and cause. Students then select examples of the different types of landforms before moving on to describing the variables of five different landform models. Students respond to questions, but the experiences provide little to develop a deeper understanding that would come through developing a physical rather than simulated model to depict relationships and form explanations.

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

- The materials present grade-specific core concepts, recurring themes and concepts, and science and engineering practices in the segment Practice A in each of the TREKs. The materials list concepts, RTCs, and SEPs in the TREK Overview. The content and tasks within each TREK do not

include all of the concepts, RTCs, and SEPs listed in the overview. For example, materials in the TREKs 5.6AD Physical Properties of Matter Overview list the Central Concepts about physical properties that include students describing, testing, and comparing physical properties. The overview also includes a list of several SEPs, including asking questions and defining problems, constructing organizers, analyzing data, communicating explanations in various settings, researching and exploring resources to investigate STEM careers, using tools, and using mathematical calculations. Materials also list RTCs students will use in the TREK, such as use scale, proportion, and quantity to describe, compare or model different substances. Students view slides during the TREK activities and complete drag-and-drop and short-answer questions. In Practice A, materials list another SEP–5.4A Explain how scientific discoveries and innovative solutions to problems impact science and society," followed by the statement, "Students read about the discovery of insulating containers and write about its impact on science and society." The task does not fully reflect the SEP standard. For example, 5.12A Practice Custom Investigation Handout allows students to complete a custom investigation.

- For example, in TREKS 5.10C, Landforms materials provide students with a picture to identify how changes to Earth's surface by wind, water, or ice result in the formation of landforms, including sand dunes. The materials provide no guiding questions and support for teachers to facilitate and engage students. Students then actively read a brief passage to prepare them to " begin modeling landforms." However, students do not physically model landforms. Materials provide a simulated model. The materials provide the following statement: "Students will investigate how changes to Earth's surface by wind, water, or ice result in not only deltas, canyons, and sand dunes but also two different kinds of valleys. They will work with the models to identify the landforms in further slides." The materials provide instructions on what the student is doing on the slides but not how the information is connected to recurring themes and patterns or SEPS. The materials provide the Recurring Themes and Concepts Spotlight embedded box on 5.5B Practice A and allow students to identify the cause and effect relationship to explain phenomena. The materials provide the students with pictures, and they are to complete a digital graphic organizer to show their understanding of the cause and effect seen in the photographs. The materials do not provide actual investigations of these processes but observation through pictures, visuals, and text online.
- The materials present core concepts, recurring themes and concepts, and science and engineering practices (SEPs) in every Practice A segment, but no other segmentsFor example, in the Overview for TREK 5.11 Natural Resources, the Apply section lists Scientific and Engineering Practices as it relates to the TEKS "5.1C Demonstrate safe practices during field investigations as outlined in Texas Education Agency-approved safety standards. and 5.4A Explain how scientific discoveries and innovative solutions to problems impact science and society." Teachers can see the activity described in the Overview: " Students embark on a task-based problem-solving real-world scenario with a mission to help Uncle Mike design a water conservation plan for his farm." Materials do not state when the SEP for safety practice is utilized within the tasks in the TREK. While the text portion of the TREK provides accurate information about how deltas are created, students do not get to develop models to construct an explanation for themselves.

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

- The materials include learning targets for mastery. Materials provide a scope and sequence document called RPA Framework and TREK Guide that outlines an option for when learning targets can be introduced, developed, and mastered within the program. Teachers can assign

each TREK in segments or as a whole. Teachers must assign every segment of every TREK to ensure that students view all slides that include learning targets.

- The materials partially define the boundaries of content that students must master for the grade level. For example, in materials 5.6AD, Physical Properties of Matter use SEP 5.2C (use mathematical calculations to compare patterns and relationships) as the referenced TEKs for calculating density. In 5th grade, TEKS 5.6A states to compare and contrast relative density (sinking or floating using water as a reference point). Students calculate density to identify an unknown substance in 6th grade. In the digital student journal, students calculate the density of 3 types of wood to label the wood properly. In TEKS 5.7B, students "Design a simple experimental investigation that tests the effect of force on an object in a system." For TREKS 5.7B, students do not get to design a lab as the TEKS objective states students should be able to master. Students drag and drop parts of an investigation design but do not get the opportunity to master the objective by designing anything independently.

RPA TREKs Grade 5

Indicator 3.2

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

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

Partial Meets | Score 3/6

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

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

Evidence includes but is not limited to:

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

- The materials include some guiding documents that support teachers in understanding how new learning connects to previous and future learning across grade levels. The RPA Framework & TREK Guide states the "Recall makes an exceptional review of previous grade-level TEKs" but does not demonstrate where the TEKS are connected in the document. The materials contain a *Looking Behind* and *Looking Ahead* in each *Overview* that contains a list of standards from previous and future years to come. The standards are listed the way they are in the TEKS. Additional information to support teachers in understanding how new learning connects to previous and future learning is not included. For example, 5.11A Natural Resources Overview lists 3.11C and 4.11B. The materials do not explain how new learning will connect to previous learning. In 5.13A, the materials include in *Recall* that "students should be able to relate information from 3rd, 4th, and possibly 5th grade to these terms using examples they have either directly observed or learned about previously." This statement is used several times as a way to connect to prior learning. No information is provided about what information students should relate to the *Recall* materials.
- The materials include guiding documents named RPA Framework & TREKs Guide that partially explain how content and concepts increase in depth and complexity across lessons and units

within the grade level. The RPA Framework & TREKs Guide offers a suggested Scope & Sequence with Interleaved Practice for teachers to utilize in delivering materials. Materials include a Recall-Practice-Apply (RPA) framework in each TREK. In TREKs 5.6AD Physical Properties of Matter segment Practice B, students read through scenarios and write the responses into a chart. Next, students read and select two materials from a chart. The concepts do not build in complexity as the students are still reading and responding even to the end in the Pulling It Together section, where students complete two drag-and-drop activities.

- Materials do not explain connections throughout or between each TREK. For example, in TREKs 5.6 AD and 5.6 BC, the materials do not provide information for teachers that describe how students connect learning about the physical properties of matter across TREKS.

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

- The materials include some background information for teachers that provides explanations and examples of science concepts. Materials provide Addressing Misconceptions in the Teacher's Instructions for Practice A about the featured phenomenon. For example, in TREK 5.12A, the teacher is provided with the misconception that the students may believe water is absorbed by the leaves of a plant or that plants breathe just like animals. Teachers are given guidance to counteract the misconception by emphasizing that the air and water the plants are interacting with are part of a healthy ecosystem. The materials do not provide in-depth support for teacher understanding, such as additional resources and further reading for every segment. For example, in 5.13B, materials state in the overview, "Different structures in various plants and animals allow them to function and survive in their environment, such as cones vs. flowers on trees or the shapes of beaks and feet on birds. Physical characteristics allow organisms to respond to interactions in their environment to escape predation, camouflage through seasons, and promote pollination. Comparing structures and functions of species in various environmental models promotes explanations on how organisms survive in their ecosystem." Materials do not provide additional reading material, background about learned and inherited traits, or examples.
- The materials provide a short explanation of what each activity the student is doing. If the students have a possible misconception, it may be noted. For example, TREKs BC Mixtures & Solutions include six misconceptions about the standards. One misconception is that dissolving is not a chemical change. An explanation of chemical changes is not provided to support teacher instruction. Physical changes or chemical changes are not addressed for background knowledge.
- For example, in 5.13A Structure and Function, misconceptions are outlined in the overview "Students often confuse structure and function in living things. Structures that help animals survive do not appear in one generation. Students often think these changes occur quickly. It takes generations for living things to adapt to their environment." The materials do not explain how to address each misconception or provide background knowledge for the teacher.
- The materials do not include support for teachers to develop their own understanding of more advanced, grade-level concepts. For example, an objective is provided for each segment in TREKS BC Mixtures & Solutions. Below the objective states, "Students will be able to explain that some mixtures maintain the physical properties of their substances and compare the properties of substances before and after they are combined into a solution and demonstrate that matter

is conserved in solutions." an "I can" statement, student expectation, and academic terms. Background knowledge for teachers is not provided.

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

- Materials highlight key features of the instructional design in the RPA Framework & TREK Guide. The materials describe the various components of the program, including descriptions of the Overview, Teacher Instructions, Digital Student Journal, and the Printed Student Journal that is coming in the Fall of 2024. The materials provide a brief description through an RPA TREKs orientation video that states, "[TREKs is] A supplemental curriculum for fifth-grade science students." Materials also state, “Steeped in research, the Recall-Practice-Apply (RPA) framework is designed for interleaved practice. Innovate student retrieval and retention with spacing to interrupt forgetting and improve student learning outcomes. Our varied, engaging, and interactive lessons are designed in units, or TREKs, that seamlessly integrate prerequisite knowledge, scientific investigations, STEAM extensions, literacy, reflection, and problem-solving. Get ready to accelerate students to new heights with versatile lessons for a versatile classroom.” Materials adhere to the stated lesson structure for each TREK. .
- The materials provide a framework explaining the main intent or goals of the program outside. Materials provide an RPA Framework & TREK Guide that thoroughly describes the program's instructional approaches and references the researched-based strategies present in each unit. Materials explain the breakdown of the Recall, Practice A, Practice B, and Apply segments that are in each TREK. Describing how the Recall is to review prior knowledge by activating schema, review the previous vocabulary in context and connect self to content. Practice A is described as a Scientific Investigation and STEAM extension that provides varied investigation types integrating SEPs and RTCs. Practice B is described as an Active Reading & Reflection that features second-hand investigations in the field and lab, promoting science literacy and integrating reading skills. The Apply segment is described as being a problem-solving mission that highlights real-world scenarios, cultivates solution-oriented learning, and applies a claim-evidence-reasoning model.

RPA TREKs Grade 5

Indicator 4.1

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

1	Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers.	PM
2	Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts.	M
3	Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts.	PM
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.	PM

Partial Meets | Score 2/4

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

Materials provide some support for students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts. Materials provide some opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts. Materials provide some support for 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 provide some learning activities that support students' meaningful sensemaking. A digital student journal is embedded in each lesson to support students in writing as scientists and engineers. For example, in TREK 5.7B Practice A, students have concluded a simulated experiment and are prompted to respond to the research question of the lesson. Students are given a box to respond to this question and then prompted to respond to a second conclusion, "The hypothesis for this experiment was as the trajectory angle increases the distance traveled will stay the same. The data did not support this hypothesis. What should you consider at this point?" Students provide an answer in a given yellow box.
- In some of the lessons, the learning activities do not support students in meaningful sensemaking. For example, TREK 5.6AD Apply includes the learning objective that each student will be able to compare, contrast, and identify unknown objects based on their relative density.

The materials provide a scenario of Timber Trouble where students identify types of wood based on their relative density. A series of slides guide students through the steps to test the wood types. Students complete a table by filling in the mass of each wood type by looking at a picture of the wood on a triple beam balance with the mass labeled above. Students do not read the scale; they copy the mass from the picture to the table. On slide 21, students type their claim and evidence to answer why some types of wood sink in water more than others. Students select an answer choice for their reasoning from a given set of answer choices. Students do not construct a response using reasoning to explain how their evidence supports their claim.

- Students respond to the information presented in digital slides. Students do not create questions on their own or come up with possible solutions to those questions. In TREK 5.13B Practice B, students read about how animal keepers at a zoo train animals, and then students use the information from that passage to answer the questions. Students simulate helping out an animal keeper by reading entries about Ava the Golden Eagle's behaviors to answer questions about teaching behaviors to a bird of prey. During the In the Field section, students create a plan to be presented to the rescue center. Materials do not provide opportunities for students to ask questions, discuss their thinking, or complete the process of investigating a problem during the TREK.

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

- The materials provide opportunities for students to engage in purposeful and targeted activities with grade-level appropriate scientific texts. For example, throughout each TREK, students purposefully read a scientific text and respond to their readings with reading response questions, vocabulary, drag and drop, fill in the blanks, and writing responses. For example, in TREK 5.13A Recall, students read a brief passage that introduces the terms environment, survival, adaptation, structures, function, and species. From this reading, students match the structure and function terms with their definitions. During the Practice section, students read about pollination and use this information to participate in a simulated investigation to investigate "how plants have specific structures that attract different pollinators." Students analyze the given data and fill in the blanks to show their understanding of pollinators.
- In TREK 5.7B Practice A, students read a brief text that provides grade-level appropriate information about the history of rockets and how far science has come since its origin.
- The opportunities for students to engage with scientific texts include activities, such as pre-reading and vocabulary, to help them develop an understanding of concepts. In TREK 5.6BC Mixtures & Solutions, Practice A, students read a short text titled "Investigating: Jewelry Making." The text provides grade-level appropriate information about the variations of jewelry making and ties to the objectives of the lesson.
- For example, in TREK 5.10A, Practice B, materials provide a passage where students are to read the passage and write a description in a graphic organizer. Materials provide a passage containing highlighted text students use to fill out the matching color-coded graphic organizer.
- The materials provide opportunities for students to engage with scientific texts to gather evidence and develop an understanding of concepts. For example, in TREK 5.12A Practice B, students read passages about the American Robin, Great Blue Heron, and the Eastern Meadowlark. Students find evidence to answer where they live, the type of shelter or nest, and the kind of food and water they need to live. Students use this information to understand the biotic and abiotic factors needed for these birds to live in an environment.

- In TREK 5.12 Apply, students read two entries about different turtles and their habitats and diets. Students find evidence from the passage to support releasing the turtles into freshwater or saltwater environments to help them survive.

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

- The materials provide some opportunities for students to communicate thinking on scientific concepts in written and graphic modes. For example, in TREK 5.7B, Apply students observe images of spring scales and fill in data tables. Students then take the average force for both tests and compare them using greater than symbols. Students respond to a multi-select question to explain the reasoning for the best choices. Students write their claims and evidence for their conclusion. Students do not construct a justification for their reasoning. Students select one of three given responses for their reasoning.
- In Apply of 5.6BC, students complete a Venn Diagram of mixture and solutions. Students drag and drop descriptions into the correct section of the Venn Diagram. Students do not write their own descriptions. Students complete a Claim-Evidence-Reasoning. Students write their own claim for how a mixture is different from a solution and provide their own evidence. Students do not construct a justification for their reasoning. Students select one of three given responses for their reasoning.
- For example, during the Practice A phase of TREK 5.12A, students are directed to collect data using a graph that is partially completed with plant height data. Students complete the rest of the table based on the provided information that Plant 1 received 20 ml of water per week and Plant 2 received 40 ml of water per week. Students then plot a line graph to show data. Students do not communicate their thoughts. Students then type their written response to the question, “How does water affect plant growth?” Materials direct students to describe their observation of relationships between plant growth and other factors presented in the model investigation.

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 some support for students as “practitioners” while they are figuring out (sensemaking) and productively struggling. For example, in TREK 5.8B Apply, students make a claim about how circuits work. Students provide evidence and choose a reasoning answer choice to support their evidence.
- For example, in TREKS 5.10C Landforms, Practice A, students use a sample student journal entry. After reading the sample entry, students choose from a list of answer choices to a question about the sample entry. Students do not record any information that they observed personally. Students do not engage in engineering design processes.
- For example, in 5.13B Behavioral Traits Practice B, students consider how to care for Ava, a golden eagle. Students read about Ava and learned and inherited behaviors on slides 5-8. Students apply the information when they consider how to teach Ava to not fly away from veterinarians. Students do not share their ideas with others or test their theories.
- The materials provide some authentic student engagement and perseverance of concepts through productive struggle while acting as scientists and engineers. Each student slide is designed to allow each student to independently respond to questions and complete tasks. For

example, in TREK 5.12 B Practice A, students then observe the research question, “How do changes in the population of producers affect the population of consumers over time?” Students read and drag the hypothesis and two variables into their correct boxes. Students read how to develop a model and then drag and drop organisms into the correct place to create a food chain model. Students practice using a model that has already been created to analyze the hierarchy of producers and consumers. Students write their prediction of what would happen if an organism was removed from the food web. Students complete a premade graph according to the provided instructions and use its information to create a line plot.

- For example, material provides a simulation in TREK 5.6BC, Apply, where students read about two students working in a drink lab. One student accidentally spills two substances. The students work through the slides that provide how to identify each substance step by step. Students do not determine how they will test each substance.
- The materials create *transfer* opportunities for students to take what they have learned and use it flexibly in new situations. For example, in TREK 5.13A Practice B, students read and observe pictures of animals and how they use adaptations to survive. Students read about the structure and functions of a porcupine, red-tailed hawk, painted lady butterfly, Mexican free-tailed bat, and nine-banded armadillo. Students use this information to help them answer questions about how animal structures and functions help them survive in their environments.

RPA TREKs Grade 5

Indicator 5.1

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

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

Partial Meets | Score 2/4

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

Materials prompt students to use evidence to support their claims but not their hypotheses. Materials include some embedded opportunities to develop and utilize scientific vocabulary in context. Materials partially integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. Materials somewhat provide opportunities for students to construct and present developmentally appropriate written and/or verbal arguments that justify explanations to phenomena and solutions to problems using evidence acquired from learning experiences.

Evidence includes but is not limited to:

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

- The materials provide opportunities for students to develop *how* to use evidence to support their claims. Materials do not provide opportunities for students to develop *how* to use evidence to support their hypotheses. The materials specifically prompt students to use evidence when supporting their claims but not their hypotheses. Every Practice A segment now includes an opportunity for students to use evidence to support their hypothesis (in experimental investigations only) and claims.For example, in TREK 5.6AD, Apply, students match the definition to the correct term: claim, evidence, and reasoning. On the following slide, students write in their claim and evidence based on their investigation and then complete a drag-and-drop to provide the evidence to support the claim.
- In TREKS 5.9A, Earth's Rotation, materials provide slide 18 of the Digital Student Journal for students to complete their Claim, Evidence, and Reasoning. Materials instructions state, "Based on your field experience, write in your Claim and Evidence." Materials provide text boxes for students to type a response to the claim question and the evidence question.
- Materials do not provide opportunities for students to develop *how* to use evidence to support their hypotheses. For example, in TREK 5.12A, students are not given opportunities to develop

how to use evidence to support their hypothesis. Students read about plants needing abiotic and biotic factors to function. The text introduces students to the investigation of analyzing the data of two growing plants to answer the question, “How does water affect growth?” The hypothesis is given through a multi-select option. Students do not develop how to use evidence because it is already given.

- For example, in TREK 5.12B, students read the introduction and the research question, “How do changes in the population of producers affect the population of consumers over time?” Students move statements to create their research hypothesis and investigation. When discussing the answers with students, teachers point out that the hypothesis includes what is being compared in the investigation - the population of producers and populations of consumers. The independent variable is what can be manipulated, the amount of time, and the dependent variable is the response we are looking for - populations of organisms. The instructions do not provide students with opportunities to develop how to use evidence to support their hypotheses and claims.
- In TREK 5.12A, Apply, the materials instruct students to write a claim based upon the question: Why do different turtles sometimes live in different habitats? Students will give evidence from Turtle Facts to support their claim in the box below. Then select their reasoning from 3 choices. In TREK 5.12B, Apply, Conclusion, a description is for students to show their understanding of the material by writing a claim backed up with evidence from their reading. Students respond to the question: What happens when new consumers are added to a closed system like a terrarium? Students write their claims in the box. They also write underneath a response to “What is the evidence from the mission?” Then they choose the best reasoning description to support their claim from the three choices.
- For example, in TREKS 5.10A, Water Cycle and Weather, materials provide slide eighteen of the Digital Student Journal for students to complete their Claim, Evidence, and Reasoning. Materials Instructions: “Based on your field experience, write in your Claim and Evidence.” Students are provided text boxes to type a response to the claim question and the evidence question.
- Materials do not prompt students to construct a hypothesis, nor do materials prompt students to use evidence to support their hypothesis. In TREK 5.6AD, the students are provided a hypothesis and do not make their own. In the following slide, students match the term hypothesis with the definition- "A testable statement to experiment or test." On the following slides, students read graphs of material temperature to find the most effective and least effective insulators. The instructions on the conclusion slides tell students to “include evidence from the data collected in the experiment.” Students write a claim and evidence based on their simulated lab findings. They then select from three reasoning choices and choose the best one to support their claim.

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

- The materials do not include opportunities to develop and use vocabulary *after* having a concrete or firsthand experience to which they can contextualize new terms. Materials introduce vocabulary through illustrations, explanations, and other experiences. For example, in TREK 5.8C, Practice A, teacher instructions guidance is provided about the academic vocabulary that is embedded in the lesson. "Academic Terms: Concave and convex lenses are introduced in this investigation. Also, students will use terms previously discussed in the “recall” and the components of data tables, axes, and ordered pairs."
- For example, TREKS 5.10C, Landforms, materials provide two slides for students to interact with vocabulary and academic terms. Students do not engage in a concrete experience previous to

interacting with vocabulary. Digital Student Journal Slides provide both slides six and seven, where the student chooses a term from a term box and places it in the correct blank.

- The materials introduce the vocabulary through brief reading passages. The terms are bolded and provide the definition and examples of the terms. For example, in 5.12A, Recall, student slide 5, students read a brief text in which the terms are bolded and state the definition within the text. The students do not have opportunities for concrete or first-hand experience to understand the terms before being introduced to the vocabulary.
- The materials do not present scientific vocabulary using multiple representations. Materials provide lists and text definitions of vocabulary terms. In TREKS 5.6AD, Recall, students match science terms to their definitions, moving the terms into a graphic organizer that shows terms and examples, completing a similar matching for measurement tools, and matching examples of soluble, magnetic, and density. Finally, students select two terms and write a specific memory about the terms or what they know about the terms.
- For example, in TREK 5.13A, Structure and Function, Practice A, teacher overview, the teacher is provided a list of terms the student will be introduced to during the lesson. "Academic Terms: pollinators, structures, independent variable, dependent variable. "
- For example, in 5.13A, Recall, students match structure and function terms with their definitions based on the previous reading. In 5.12B, Practice B, students fill in a cloze text with key terms on factors impacting the stability of ecosystems.
- The materials provide opportunities for students to match scientific vocabulary within context. Materials do not include opportunities for students to use and apply vocabulary. In 5.6AD, Practice A, the students use data from a simulated investigation to identify which material was an effective insulator. In Practice B, the students read a paragraph and determine the meaning of insulate by using context clues.
- In 5.12C, Apply, Academic Terms Digital Student, students move academic terms into sentence stems for explanations of the human impact on the dolphin ecosystem. In 5.12 C, Apply, Mission: Field Investigation Safety, students move terms to the correct category. In 5.13A, Apply, Apply Academic Terms, materials provide for students to use information from the passage and the previous slides to move academic terms into sentence stems to explain biomimicry.

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

- The materials provide some opportunities for students to develop *how* to engage in the practice of argumentation and discourse. For example, in Practice A, students complete data interpretation and analysis in order to answer a research question, "How are mixtures separated?" In Practice B, students look at recipes to determine if they are mixtures or solutions. Students type their answer about which item is a mixture and explain their answer. In the Apply segment, students explain what happened to a drink mix and water when mixed together. Students are not provided an opportunity to debate and critique others' claims.
- Materials provide instructions on how to use an instructional routine. Materials do not explain when the routine would be used during the course of the lesson. For example, in TREK 5.8C Light Practice A, a yellow box included at the bottom of the page give teachers guidance on how to complete an instructional routine titled "Fish Bowl Discussion" Materials provide the topic "Fishbowl Discussion: Students will be able to engage in a collaborative discussion explaining how light travels in a straight line and can be reflected, refracted or absorbed using a fishbowl

format." The instructions state that the teacher distributes science content to be discussed but does not supply the content to be discussed.

- The materials provide opportunities for students to make claims and provide evidence. Materials do not integrate argumentation and discourse within stages of the learning cycle. In TREKS 5.6AD, Practice A, students complete a simulated investigation to identify the best material to insulate liquid. Students write their conclusion that answers, "Which household material insulates the most thermal energy?" Students do not share their investigation with others and argue about the best thermal insulator.
- In TREKS 5.6AD, Apply, students complete a simulated mission to identify types of wood based on their relative density. At the end of the mission, students write a reflection response explaining why some types of wood are better than others for building or hobby projects. Students do not share their responses with classmates to argue their reasoning.
- Materials provide some argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. Materials provide opportunities for discourse but not argumentation through the Practice Segment A. For example, in TREKs 5.12A, Practice A, the teacher instructions has teachers encourage discourse in sharing their ideas on the scientific principles and themes related to the investigation and the hypothesis. For example, TREKS 5.11A, Natural Resources Digital Student Journal, slide three, "What is Happening?" instructs students to observe an image and type in a response to the question. The student completes the slide alone and does not engage in scientific argumentation.

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 some instruction for *how* to construct and present a verbal or written argument to problems using evidence acquired from learning experiences. Every Practice A segment now includes an opportunity for students to develop conceptual understanding of phenomena through argumentation and discourse throughout their scientific investigation. For example, the Teacher's Instructions for TREK 5.12A, Practice A, the teacher encourages students to participate in discourse by bringing the class back to a whole group setting and regroup before differentiating discussions by small group. The materials provide suggestions of using a variety of formats, including a Think-Pair-Share, gallery walk, or other collaborative learning strategies. For example, in TREK 5.6AD, Practice A, students make a prediction about which material will maintain a consistent water temperature. Students collect simulated data to use when they drag and drop the material that was the most effective according to the data collected. Students write a conclusion to answer the research question, "Which household material insulates the most thermal energy?" Materials direct students to include evidence from data collected in the experiment. Materials do not provide instructions for how to construct or present their arguments.
- Materials provide some guidelines to construct, present, or write an argument. In TREK 5.12A, Practice A, students are given slides that guide them in constructing an explanation to represent the What Is Happening phenomenon. In TREK 5.12 C, Mission, students reflect and answer "What are some innovative ways humans can change their activities to impact society and preserve dolphin populations?" This slide is after the Claim Evidence Reasoning activity. In 5.13A Mission: Reflection, students write about what they have learned regarding habitats and the

turtles' needs. Materials instruct teachers to ask students to refer to their Claim Evidence and Reasoning slide when completing the reflection.

- Materials don't clarify if the reflection is to justify explanations for arguments or problems. For example, in TREK 5.12B, Apply, students show their understanding of the material by writing a claim, backed up with evidence from their reading. Then they choose the best reasoning description to support their claim. Students write a reflection on the processes involved with answering "How would the organisms in a natural or open ecosystem respond if the plants in the area suddenly disappeared?" in TREKS 5.6AD, Apply, students match claims, evidence, and reasoning terms with their definitions. The students' instructions state, "Based on your chosen release sites, write in your Claim and the Evidence. Then, move the best Reasoning Description into the Reasoning Box." In the Claim box, the question asks, "Why do some types of wood sink in water more than others?" In the Evidence box, it asks, "What evidence from the Wood Density Chart and your sample testing supports your claim?" The slide does not state for students to discuss with peers to solidify their thinking or help formulate their thinking.
- The materials provide some criteria for developmentally appropriate arguments to explain a phenomenon or defend a solution to problems using evidence acquired from learning experiences. Practice A segments contain a section titled Construct an Explanation, where students respond to steps such as "Identify the components of the system. Use a sketch to support your response." The materials provide a text box for students to respond. The Digital Student Journal does not provide rubrics or criteria for students to use when explaining or defending their thinking. The Teacher's Instructions supply only a possible claim and possible evidence to go with the Conclusion statements, but no rubric is supplied to the teacher to guide students.
- The materials provide opportunities for students to write a claim and evidence but do not require them to justify their reasoning with peers. For example, in TREKS 5.6BC Apply, the instructions for students state, "Based on your lab findings, write in your Claim and the Evidence. Then move the best Reasoning Description into the Reasoning box. In the Claim box, the question states, "How is a mixture different than a solution?" In the Evidence box it states, "What evidence supports the claim?" Materials prompt students to use specific examples to explain a statement about mixtures and solutions. Students do not share with peers to formulate an argument.
- For example, in TREK 5.8C, students generate a claim and then drag and drop a provided reasoning explanation to support their reasoning. Based on what students have learned about the behavior of light, students write their claims and evidence. Students select a Reasoning Description and drop it into the Reasoning box. Students do not construct their own reasoning explanations. Students do not present their explanations to peers.

RPA TREKs Grade 5

Indicator 5.2

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

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

Partial Meets | Score 2/4

The materials partially meet the criteria of the indicator. Materials provide some teacher guidance to support student reasoning and communication skills.

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

Evidence includes but is not limited to:

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

- The materials provide teachers with some possible student responses to questions and tasks. The materials provide teachers with an answer key to questions and tasks but not possible incorrect student responses. Every Practice A segment now includes an opportunity for teachers to anticipate student responses, particularly in the Observe Patterns section. For example, in TREK 12.A, Practice A, the Teacher's Instruction provides the following information in the Answer Key for the section titled Observe Patterns, "An anticipated student response should note there are dozens of water droplets (quantitative) and the water is clear and the plan is green (qualitative) The plant's structure seems to be "holding" the water. For example in TREK 5.6AD, Physical Properties of Matter, Practice A, the answer key states, "Student answers will vary. They should show how the use of thermal containers benefits science and society, both by the popularity of the containers in reducing waste but also in preventing spoilage of food and beverages." Materials don't provide sample answers but state what should be in the answer.
- The materials do not provide guidance on how students may respond but it does provide answer keys to the activities in the student journals. There is not any guidance on teacher questioning to deepen student thinking however in some lessons in the yellow box. "Probing questions'' are provided in some ELPS spotlight boxes but no sample responses are provided.

For example, in TREK 5.8C, Light, in the overview, there are questions provided to the teacher in an ELPS Spotlight to prompt students to think, "What is the relationship between living and nonliving things in an ecosystem? How does the data indicate a change?"

- The materials do not provide teacher responses to possible students' responses, including how to build on students' thinking. The materials provide teachers with some explanation of what the responses should include but do not provide responses or examples of how to build on students' thinking. For example, TREK 5.6AD, Physical Properties of Matter, Practice B, provides an answer key to things that are magnetic, not magnetic, and what can be inferred. For the questions about what can you infer the materials state that answers may vary. For the other questions the material provides, "If the material is magnetic, then it will be attracted to a magnet. Only items that contain a magnetic metal, like iron, will be pulled out." Materials do not provide possible student responses or how to respond.
- In TREK 5.13A, Practice A, students use the independent/manipulated variable and dependent/response variables to sort statements. The Teacher's Instruction states to discuss answers with students and remind students what the definition of Hypothesis, Independent Variable, and Dependent Variable while explaining the correct answers. The materials do not provide support for teachers to build on student thinking just to provide the answer.
- The materials do not provide support for teachers to deepen student thinking through questioning. Materials provide probing questions in some ELPS Spotlights in some TREKs. For example, in TREK 5.7B, Forces & Experimental Design Overview, an ELPS Spotlight provides the following probing questions, " What factors do you think might affect the force required to...? Can you explain the relationship between...? What kind of changes could we make to the experimental design to improve accuracy? What are some potential sources of error in this experiment, and how can we address them? How could we apply the results of this experiment to real-world scenarios?" Materials do not provide teacher guidance on when to use the probing questions.
- In TREK 5.13A, Practice A, Investigation, Conclusion materials provide teachers with information that in the activity students synthesize the information they have learned to review the investigation question. The materials provide an answer key and some guidance about how students should answer the questions stating that student answers "will vary based on the pollinator they choose but should demonstrate an understanding of the different structures that attracted the organism. Different pollinators have different structures or features that help them carry pollen. For example, birds have long beaks to reach pollen in flowers with long petals."

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

- The materials provide some embedded supports for the teacher in how to introduce and scaffold students' development of scientific vocabulary. The materials supply a list of academic terms in the TREK Overview. Materials do not include guidance for how to introduce or scaffold students' development of scientific vocabulary. Materials provide teachers with For example, In TREK 5.12A, Overview, the materials list several academic terms such as *shelter*, *producer*, *consumer*, *organism*, *living component, non-living component*, and *ecosystem*. Materials do not provide teacher guidance for scaffolding or supporting students' development of the terms.
- For example, in TREK 5.6BC, Mixtures & Solutions, Recall, students recall prior knowledge and practice vocabulary. In the teacher instruction guide the material provides answers to each slide. Materials do not provide additional support for the teacher. On one slide, students select

two terms and write a sentence explaining what they know about each word. The teacher's instructions for this slide states, "Brief reflection on what students knew about the academic terms up to the present. There is no correct or uniform answer for these connections, however, students should be able to relate information from 3rd, 4th, and possibly 5th grade to these terms using examples they have either directly observed or learned about previously. Encourage full sentences in the written descriptions."

- The materials provide some guidance for the teacher on how to support students' use of scientific vocabulary in context. In 5.12A, Recall, students identify the examples of basic needs of producers and consumers by completing interactive matching in a bubble map. Materials provide teacher guidance stating that in previous grades students described the physical characteristics of the environment and how basic needs support producers and consumers. The guidance is provided to revisit the TREK with students as they bridge “living” and “biotic” as well as “nonliving” and “abiotic” terms in 5th grade and the vocabulary will be practiced later in TREK.
- For example, in TREK 5.13A, Recall, students select physical traits for Structure, or how an organism uses traits to survive for Function. They match structures to functions on a picture. Materials remind teachers that if students struggle to differentiate between structure and function, teachers are to remind them that structures are used to describe organisms - what they have and functions are what we use to describe what organisms are doing. Materials only provide definitions of key terms. Materials do not provide specific guidance for how students can use the words in context.
- For example in TREK 5.6BC, Mixtures & Solutions, Practice A, students write a description for using physical properties of substances and the difference between mixtures and solutions. The teacher guide for the same slide states, "Student answers will vary, but should focus on how mixtures can be easily separated by mechanical means and solutions are not. The physical properties do not change." Materials do not provide guidance for reminding students what a substance means or how to determine the difference between a mixture and a solution.

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

- The materials provide some teacher supports to prepare for student discourse. Materials include support in students using Claim Evidence and Reasoning (CER) statements and support student discourse in the Practice A segments. . For example, in TREK 5.12A, Practice B, Skills Practice: CER, the teacher instructs students to place the correct statement in each area. If students struggle to distinguish between the Claim, Evidence, and Reasoning, teachers remind them that their Claim is what they know, their Evidence is how they know what they know, and their Reasoning is how what they know, supports what they know. This activity does not include guidance for student discourse.
- For example in 5.6AD, Physical Properties of Matter, Apply, students review the mission statement and complete a scaffolded CER using their knowledge. In the teacher guide the materials state, "The data they collected to answer a research question is concluded in a way to develop an explanation it supports. The steps of the mission they completed were steps of empirical data collection and the conclusion provides reasoning for the different physical properties in each material tested." It also includes an answer key for each portion of CER. Students do not have an opportunity to discuss with their peers. An ELPS box at the bottom of this section does provide an ELPS Spotlight strategy for a structured academic talk where

students can complete a Q Triple S A activity. Materials do not include information regarding when to utilize the strategy.

- The materials do not provide teacher questions for supporting student discourse and use of evidence in constructing written and verbal claims. For example, in TREK 5.6BC, Mixtures & Solutions, Apply, students state a claim and justify it with evidence, and then select the appropriate reasoning statement. The materials provide an answer key statement. Materials do not provide questions to support student discourse. At the bottom of the teacher page, an ELPS Spotlight provides a collaborative learning strategy. The strategy provides instructions for students to participate in a debate about a science topic. It does not provide explicit support for the science topic in the slides.
- For example, TREK 5.10B, Apply, in the Digital Student Journal students answer questions about the formation of sedimentary rocks and select a Reasoning Description to support their Claim. Materials do not provide guidance on preparing for student discussion. Materials do not provide questions for the teacher to ask outside of the Digital Student Journal.
- The materials do not provide guidance that teachers can use to provide feedback to students while engaging in discourse. For example, in TREK 5.6AD Practice B, students use the information they have learned to summarize their knowledge by typing their responses into the slide. The Teacher Instructions provide an answer key but the materials do not include guidance for supporting student discourse or how to provide peer feedback.
- Materials provide opportunities for students to make claims. Materials provide some opportunities or teacher guidance for facilitating student discourse in Practice A. For example in TREK 5.6AD Physical Properties of Matter, Apply, students write a claim and support it with evidence. In TREK 5.12A Practice A, Teacher's Instructions guide for student discourse to take place through a variety of formats and states to use accountable talk stems for all learners but the materials do not specify to the teacher what format or stems to use for the discourse.

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

- The materials provide some teacher support and guidance to engage students' thinking in various modes of communication throughout the year in the Practice A segments. For example, TREK in 5.6AD, Practice A, the students explain how Dewar's discovery impacted science and society after reading a brief passage. The teacher guide shows a Scientific & Engineering Practices Spotlight for TEK 5.4A. In the spotlight, it states, "Students read about the discovery of insulating containers and write about its impact on science and society." The answer key for the slide states, "Student answers will vary. They should show how the use of thermal containers benefits science and society, both by the popularity of the containers in reducing waste but also in preventing spoilage of food and beverages." The materials do not provide additional support for teachers to deepen students' thinking. Materials do not provide additional probing questions.
- In TREK 5.13A, Apply Materials, students write a brief reflection to answer, "How did you use biomimicry and the engineering design process to solve a problem?" The materials provide an Answer Key that states student answers will vary but should generally show an understanding of how humans use the structures and functions of other organisms to solve human problems. Materials do not provide exemplars of students' verbal responses for sharing their thinking.
- Materials provide some teacher support for facilitating the sharing of students' finding solutions. Materials do not provide feedback tips and examples teachers can use to support students throughout the learning cycle. The materials do not provide teacher support for

facilitating the sharing of students' finding solutions. For example, in TREK 5.6BC, Mixtures & Solutions, Practice B, students identify which breakfast item is a mixture after completing the previous slides where they identified mixtures and solutions. The teacher guide provides the correct answer– "The bowl of nuts and dried fruit is a mixture because it can be easily separated into its parts. Hot chocolate is a solution because you cannot tell the difference between its components and is not easily separated." Materials do not provide teacher support questions, sentence stems, or probing questions to help students share their thinking or refer back to previous slides before typing their answers.

RPA TREKs Grade 5

Indicator 6.1

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

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

Partial Meets | Score 1/2

The materials partially meet the criteria for the indicator. Materials include some TEKS-aligned and developmentally appropriate assessment tools.

Materials include a range of formative assessments that include formal and informal opportunities to assess student learning in a variety of formats but do not include summative or diagnostic assessments. Materials assess some of the student expectations and indicate which student expectations are assessed. Materials include some assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. Materials include some 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 do not include diagnostic assessments for measuring student learning and identifying learning gains in a variety of formats. Materials include opportunities for teachers to collect information about what students are learning from the materials and use it to plan future lessons. Materials are a digital platform that requires students to respond on digital slides. As students work through the slides they respond to questions and submit answers. Teachers can review the submissions to determine students' progress. For example, students work through a Practice A and Practice B segment. The teacher reviews the students' submissions before assigning the Apply segment. TREKS provides this description for progress monitoring, "While there is not a Progress Monitoring Guide, RPA TREKs is a supplemental Science curriculum for targeted practice, intervention and test prep. Teachers are provided the autonomy to implement TREKs for any of these instructional purposes."
- Materials include formative assessments in a variety of formats to measure student learning and determine the next steps for instruction. Materials do not include guidance about the presence of formative assessments in any variety of formats to measure student learning and determine the next steps for instruction. The materials do include all new Science STAAR question types (i.e. Hotspot, Drag and Drop, Multipart, Multiselect, Short Constructed Response, and Hot Text)

in STAAR-like assessment questions in TREK segments Practice A, Practice B, and Apply. They are specifically titled "Pulling It Together" and tagged with a "star" in the top right corner as the segment comes to a close. For example, in 5.6AD Physical Properties of Matter, there are 2 STAAR-like questions. The first question assesses what physical properties do four materials have in common. The second question assesses the physical properties of matter by matching aluminum foil to its list of physical properties. For example, in 5.13 Practice A Pulling it Together, the materials provide students with a multiple-selection question in which students have to select two answers that show an example of the firefly using bioluminescence. The materials do not provide guidance or instructions as to the type of assessment intended.

- Materials do not include summative assessments in a variety of formats. Materials do not contain assessments at the end of a unit to evaluate student learning. Each TREK Practice A, B, and Apply supply two questions but does not contain a summative assessment after the TREK covering each of the segments.
- Materials include a variety of informal assessments that give teachers feedback on student learning at the moment so that they can modify instructional approaches. The materials provide a variety of different learning activities where students respond in their Digital Student Journal, such as TREK 5.8A, where students identify the forms of energy from the beginning of the system and the change to the end in a drag-and-drop activity.

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

- The materials assess all student expectations except 5.6D, as outlined in the TEKS, by grade level. In the TREKS framework, the materials indicate how the materials align with the curriculum for the 5th grade TEKS in a manner that is easily identifiable by the teachers. Materials provided instruction for all student expectations but did not provide an assessment for all student expectations.
- The materials include TEKS-aligned questions that align with the curriculum standards and student expectations and are designed to address STAAR 2.0 questions. However, in the combined TREKS, not every TEKS is assessed. Materials do not assess the TEKS 5.6D in the 5.6AD TREK. The materials provide a question where students match temperatures to what the molecules look like on one activity; however, the students do not illustrate how matter is made up of particles that are too small to be seen, such as air in a balloon.
- The materials do not indicate which student expectations are assessed. The materials do not provide an assessment table that indicates which student expectations are assessed. Each TREK targets a specific TEK. The materials overview page outlines what SEP and RTC are addressed in each segment of the RPA Framework. Materials do not specify which TEKS is being assessed in the two questions provided in Practice A, Practice B, and Apply for TREKS 5.6AD and TREKS 5.6BC, where two TEKS are combined in instruction.

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

- The materials include some assessments that require students to integrate scientific knowledge and science and engineering practices with recurrent themes appropriate to the student expectation being assessed. The Practice A segments assess the RTCs and SEPs in the investigations. The materials embed informal assessments within the Pulling It Together slides. For example, materials in TREK 5.12A, Pulling It Together, assess students' learning through

STAAR question types. The first question “In a healthy desert ecosystem, like the one shown in the photo, relatively few plant species can survive. Based on what you learned in this investigation, which abiotic factors are needed to support plant growth here?” Students select two correct answer choices that answer the question. The second question is, “All living things rely on biotic and abiotic factors to survive in healthy ecosystems. What is the one specific abiotic factor that every living thing on Earth needs? Enter your answer and explanation in the box provided.” Students write the answer in the box provided. The materials provide information that the questions for students to choose “shelter” or “food and water” are essential to all living things. Organisms may go days without shelter and food but not without water. This informal assessment does not address SEPs or RTCs.

- It is unclear which specific scientific knowledge and science and engineering practices with recurrent themes are being assessed in the questions because TREKS does not label those slides with the SEP or RTC TEKs. The Overview page provides a list of all SEP and RTC for the segment, but it is not broken down per slide. For example, TREKS 5.6AD Practice B has SEP 5.2D Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence, and SEP 5.4B Research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in science, technology, engineering, and mathematics (STEM) field to investigate STEM careers. In the Practice B, Teacher Guide, it does not state if these TEKS are aligned with the questions, only the description of the activities is provided.

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

- Materials do not include assessments that require students to apply knowledge and skills to a new phenomenon or problem. Materials include two STAAR-like assessment questions per Practice and Apply, that require students to apply knowledge and skills to a new phenomenon or problem in some of the TREKs but not all. For example, in TREK 5.6BC, Practice A, students learn about mixtures through jewelry making. The first question shows two containers, one with sand and water and the other with salt and water. Students are asked to determine which is a solution and which is not a solution. The next slide changes the phenomena to sugar and water to compare the properties of sugar and water before and after they are combined. For example, in TREK 5.6AD, Apply, students determine the type of wood for the different blocks based on their physical properties. One phenomenon used to assess the volume are four different figures made from cubes. On the following slide, the phenomenon changes to a bucket with water. Students need to determine which items will likely float.
- Materials provide novel activities but do not specify if the activity is an assessment. For example, TREKS 5.11A Natural Resources Apply provides students the opportunity to complete a mission. Students design the most efficient irrigation system for a farm and develop a water conservation plan. Students develop the plan by completing slides within the TREK. After completing the activity where students fill in Academic Terms in definition banks, students read about making a farm sustainable and keeping the environment healthy. Students then read about different types of irrigation and the percentage of water that is used for crop growth. Students then compare the three types of irrigation on how they conserve water by placing them in order from least to most water conserved. Students then write answers to the questions “What is the recommended form of irrigation to conserve water? How does this solution result in water conservation?” “How does this innovation impact society?” Students then write a claim and evidence and select a reason. Finally, students complete their Pulling It Together,, where students answer a question asking what best demonstrates water conservation like they just

practiced. Then students move an example or definition to the correct term: Conservation or Sustainability, which were the words viewed earlier in the slides. Students do not see a new problem or phenomenon at the end of the TREK. The problems mimic the problems used in the beginning when the students practice their learning.

RPA TREKs Grade 5

Indicator 6.2

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

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

Partial Meets | Score 1/2

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

Materials include some information and/or resources that provide guidance for evaluating student responses. Materials do not support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level. Assessment tools partially yield relevant information for teachers to use when planning instruction, intervention, and extension. Materials do not provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.

Evidence includes but is not limited to:

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

- Materials include some information that guides teachers in evaluating student responses. Materials provide some answer keys but do not guide teachers in evaluating written responses. For example, in 5.12 B Practice Pulling It Together, students demonstrate their understanding of the flow of energy in a model of an ecosystem. The materials provide the instructions and the answer key for teachers to check the students' answers. For the first question, the materials provide the Answer Key: Carrot → Rabbit → Fox and Mouse → Grasshopper → Owl. For the second question, the Teacher's Instruction provides an Answer Key: Bird and Owl.
- For example, in TREK 5.6AD, Apply, students write their claim and evidence that answers "Why do some types of wood sink in water more than others?" The teacher guide describes the task, "Students review the mission statement and complete a scaffolded CER using their knowledge of density. The data they collected to answer a research question is concluded in a way to develop an explanation it supports. The steps of the mission they completed were steps of empirical data collection, and the conclusion provides reasoning for the different physical properties in each material tested." An answer key provides, "Claim: (Sample answer) Different types of wood have different densities, so some tend to sink more than others. Evidence: (Sample answer) Different species of trees have different measurable densities, and my tests

showed how they vary related to the density of water." The teacher guide does not provide probing questions for the teacher to ask if the students are confused, don't know how to answer, or if they answer incorrectly. For example, in TREK 5.8C Light, Practice B, "Answer Key 1. Light from the Sun travels in a straight line to the oven. 2. Light reflects off the foil into the oven. 3. Black plastic absorbs light and heats the oven. Clear plastic traps the heat inside. 4. Heat created by the absorbed light cooks the s'more." The materials provide no other teacher guidance for evaluating responses.

- Materials include some resources that guide teachers in evaluating student responses.

Materials do not include follow-up suggestions for formative assessments in the Teacher's Guide. Each TREK has a Recall, Practice A, Practice B, and an Apply segment. Once the student completes these segments, no additional formative assessments or suggestions for formative assessments to extend learning or remediate. For example, the material provides an answer key for each slide in each segment. In TREKs 5.6AD, the teacher guide describes a slide, "Students read a brief passage showing how thermal containers were invented." The teacher guide also provides an Answer Key that states, "Student answers will vary. They should show how the use of thermal containers benefits science and society, both by the popularity of the containers in reducing waste but also in preventing spoilage of food and beverages."

The materials provide answer keys to all activities however provide no teacher guidance on evaluating the student responses.

For example, in TREK 5.8B Complete Circuits, Practice B, the answer key provides the words to match the key terms, but no teacher guidance for evaluating responses is given outside of this information. For example, 5.10A Water Cycle and Weather Practice A, Practice B, and Apply, provide Answer Keys for the teacher that correlate with student digital slides in each section. Materials do not include follow-up suggestions for teachers to implement for student responses.

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

- Materials do not provide guidance documents and resources to support teachers' analysis of assessment data. Materials do not include a diagnostic assessment or formal assessment after each TREK. It does include small formative assessments embedded in the TREKS. Materials provide an answer key and no other support for analysis of the formative assessments.
- Materials do not provide guidance documents and resources to support the teacher's interpretation of the data. Materials state, "Our expert STAAR® analysis strongly informed ideas for each segment of TREKs. We know where students struggle most with essential knowledge and skills. Our content and context align with the new question types in STAAR® 2.0." Materials provide four segments that can be assigned for student practice but do not provide guidance and tools for responding to data. It does provide a Scope and Sequence order for assigning TREKS.
- Materials do not provide guidance and tools to support teachers in responding to data to inform instruction. For example, RPA Framework TREK Guide does not include teacher guidance and direction to respond to individual students' needs. Materials state that the teachers are to Use Assessment Questions to Monitor Progress and Target STAAR 2.0 Success, but materials do not guide teachers with the next steps.
- Materials do not include assessment tools that yield data teachers can easily analyze and interpret. Materials provide data tools to analyze the completion and grades of TREKs, but no assessments are provided in the materials. For example, the online TREKS platform contains a

tab titled Assignments lists student Status in segment completion, Progress Score (%), and Grade. Each segment does include 2 STAAR-like problems but no individual assessment in the materials.

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

- The information gathered from the assessment tools helps teachers when planning core science instruction. Materials are intended to be used as a supplementary instrument and do not guide teachers with instructional decisions or planning when students do not master the content presented in TREKS. Materials do not provide suggestions for teachers to consider regarding the potential need for whole class review or reteaching because materials state, "RPA TREKs are supplementary materials that teachers can use to enrich and deepen the learning experiences from the primary instruction." (RPA Framework and TREK Guide) Materials provide a Scope and Sequence for TREKS. The publisher states in the component guide. "While there is no assessment guide, all new Science STAAR question types (i.e., Hotspot, Drag and Drop, Multipart, Multiselect, Short Constructed Response, and Hot Text) are addressed in STAAR-like assessment questions in TREK segments Practice A, Practice B, and Apply. They are specifically titled "Pulling It Together" and tagged with a "star" in the top right corner as the segment comes to a close. Further, interactions students experience as they move through a segment emulate those of the new question types. "The publisher emphasizes the utilization of STAAR question types in the materials versus actual assessments provided in the materials.
- The information gathered from the assessment tools helps teachers when planning differentiated instruction. Materials contain a grading feature, a performance tool that allows teachers to track student progress and plan intervention groups within the assignment feature in our platform. that the teacher can use to gain information to help plan differentiated instruction. Questions are embedded in the TREKS segments. Teachers can review progress in the assignment tab. Materials do not provide extension activities for all TREKS. For example, in 5.6AD, Physical Properties of Matter, slide 22 in Practice A offers a STEAM Extension for students; "This is a differentiated optional activity for non-linguistic representation of data. As some students complete the investigation, they may continue with this Extension." Students analyze a data table to select the best-insulated water bottle and then decorate it with drag-and-drop stickers. For example, materials include a sample Assignment section. The section provides student progress, score, and grade but does not guide making instructional decisions.

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

- Materials do not provide a variety of student resources for teachers to use in responding to performance data. For example, after students complete the Pulling It Together questions in Practice B, on the following slide, students "reflect on what they have learned about the differences between mixtures and solutions." Materials provide no other additional resources for the student or teacher if the student does not perform well on the Pulling It Together slides which are TREKS STAAR-like questions. For example, TREKS 5.10C Landforms Practice A provides Digital Student Journal Slides for students to interact with content. Materials do not include a list of suggested activities to assign students when they have difficulty answering assessment questions.

- Materials do not provide a variety of teacher guidance for responding to student data. For example, in TREK 5.6BC, Mixtures & Solutions, once a student finishes the Apply TREK, materials do not recommend additional activities for additional instruction or practice. For example, TREKS 5.10A Water Cycle and Weather provide Digital Student Journal Slides for students to complete Recall, Practice A, Practice B, and Apply sections. Materials do not provide a variety of resources for teachers to use in response to student data.

RPA TREKs Grade 5

Indicator 6.3

Assessments are clear and easy to understand.

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

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- Assessments mostly contain items for the grade level that are scientifically accurate. Assessments include some assessment items that align with taught objectives and present grade-level content and concepts, science and engineering practices, and recurring themes and concepts in a scientifically accurate way. For example, materials offer 2 STAAR-like assessment questions per segment on slides titled Pulling It Together. For example in TREK 5.6AD Practice A, the question accurately asks the student which property rice, shredded paper, aluminum foil, and cotton balls all have in common. For example, TREK 5.12B Ecosystems & Flow of Energy Practice A, includes a variety of animals and plants to represent a food web. The energy flow from the carrot to the rabbit to the fox is accurately demonstrated in this slide. For example, in 5.13A Structure and Function describes the scientifically accurate function of a honey possum's tail is to curl tightly around branches to move easily through trees and plants and grasp and carry objects.
- Assessments contain items for the grade level or course that avoid bias. Assessments include assessment items in the Pulling It Together section, that present content and examples fairly and impartially with no impact on student performance based on such factors as a student's home language, place of origin, gender, or race and ethnicity. For example, materials use clipart images, photos of objects, and language- appropriate for the age level on content in Pulling It Together questions in Practice A, Practice B, and Apply. In 5.12C Human Activities in Ecosystems Practice B Pulling It Together, materials ask "What can the reader conclude about years in which there was a large number of oyster sacks harvested and severe agricultural runoff?" The items

present content and examples fairly and impartially with no impact on student performance. In 5.13A Structure and Function Digital Student Journal Practice B Pulling it Together Slide 12 materials discuss Mexican free-tailed bats and how they relate to structure and function. The materials present content fairly and impartially with no impact on student performance.

- Assessments contain items for the grade level or course that are free from errors. For example, materials in 5.6BC include 6 STAAR-like questions. All questions are error-free and teacher guide answers are error-free. 5.13 B Behavior Traits Digital Student Journal slide 12 Pulling it Together materials include information that nesting female turtles emerge from the Gulf of Mexico every year from approximately May to September to lay their eggs on the beaches of the Gulf islands. This information is free from errors.

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

- Assessment tools use clear pictures and graphics. For example, 5.6BC Practice B includes clear pictures of a glass of lemonade, a bowl of nuts and dried fruit, and hot cocoa for students to identify which are mixtures or solutions. For example, TREKS 5.11A Apply includes an image of a farm with crops, rain barrels, and a barn. For example in TREK 5.12C Practice B Pulling it Together, materials show a clear Venn diagram for students to use and see clearly where to move objects. 5.13A Structure and Function Practice B Pulling it Together materials show a clear picture of a Mexican free-tailed bat on tree bark.
- Assessments contain pictures and graphics that are developmentally appropriate. For example, 5.6BC Apply shows an image of a magnet above a petri dish with sand and iron filings. Arrows are provided to show that the iron filings are on the magnet. The arrow labeled sand is directed down showing that the sand is in the dish and not on the magnet. For example, 5.6AD Practice B shows a graphic organizer for sorting items by their physical properties. The slide requires students to drag and drop materials from a box into the correct section that would be able to sort the items out of the group based on the physical properties of magnetism, density, and electricity. The graphic is easy to use and understand. For example, TREKS 5.10C Practice B Pulling it Together includes a table with information for students to review. Students read the information and choose the correct statement in the box. For example, 5.12B Practice A materials include food webs that are simple and include arrows to clearly show the flow of energy through food webs. TREK 5.12B Apply shows before and after pictures of plants. Underneath are possible reasons for the change and students must choose two and write them in a table next to the pictures. The information is developmentally appropriate for students.

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

- Materials provide some guidance for teachers to consistently and accurately administer assessment tools. Materials do not include an assessment guide or a designated section in the Teacher's Guide that supports the teacher in understanding the types of informal assessment tools included in the curriculum, such as checklists and anecdotal note-taking forms that support the teacher in collecting consistent and purposeful data. Each question has a brief statement of student instructions but no clear guidance is provided for teachers to consistently and accurately administer assessment tools. For example in TREK 5.12C Practice B Pulling It Together, materials provide a description, students will analyze a table showing the correlation between oyster harvesting, agricultural runoff levels, and water quality grade and the Answer Key. Materials do not provide further guidance for teachers.

- The materials include some information that supports the teacher's understanding of assessment tools and their scoring procedures. Materials contain 2-3 STAAR-like questions in the Practice A, Practice B, and Apply segments that include a question description for the teacher and an answer key. The questions are not in a separate section from the rest of the segment. Students complete them as they are working through the segment. The Teacher Guide provides a slide description and answer key. For example in TREK 5.8B Complete Circuits Practice A, Pulling It Together has 2 STAAR-type questions. The teacher is given an answer key but is not provided consistent and accurate information on how to administer an assessment. For example, TREKS 5.9A Earth's Rotation Practice B Teacher Instructions include answer keys but not teacher guidance on how to assess students.

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

- Materials do not offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. Materials do not have a separate assessment tool. Materials do have 2-3 STAAR-like questions in each TREK. Materials utilize a digital platform that does not offer text-to-speech within the program for students who may need that accommodation. Materials do not offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. For example, in 5.6AD Physical Properties of Matter Practice A materials provide a description of the question and answer key for Pulling It Together questions with no provided accommodations. Materials do not offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. The platform does not provide a speech-to-text feature when answering the constructed response on slide 18 of 5.6BC Mixtures & Solutions Apply for students who are unable to type their responses.

RPA TREKs Grade 5

Indicator 7.1

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

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

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- The RPA framework is designed to provide targeted activities to scaffold review, practice, or intervention for students who have not yet achieved grade-level mastery. As a supplemental Science curriculum, the varied interactive activities in the TREKs integrate prerequisite knowledge, scientific investigations, STEAM enrichment, cross-curricular Science and Reading literacy, reflection, and problem-solving. Teachers can implement each segment of the Recall-Practice-Apply model as scaffolded in each TREK consecutively or independently when targeted review, practice, or intervention is needed. Teachers can determine pace and approach (i.e., guided, independent, one-to-one, or small group).
- The TREKs are designed specifically for targeted instruction to scaffold learning for students who have not yet achieved grade-level mastery. The materials provide a structured approach that serves as a supplemental intervention resource, which includes four stages: Recall, Practice A, Practice B, and Apply. The Recall segment reviews prior knowledge of the appropriate grade 3 and grade 4 science TEKS. This section activates schema, reviews previously addressed vocabulary in context, and bridges content knowledge and skills to prepare students for the next segments. Practice A provides practice with descriptive and experimental investigations that align to and thread connections between content, scientific and engineering practices, and recurring themes and concepts. The Practice B segment features second-hand investigations that promote science literacy and integrate reading skills. The final Apply segment highlights real-world scenarios, cultivates solution-oriented thinking, and applies claims, evidence, and reasoning.

- Materials are designed to provide support to students who have not yet achieved mastery. The RPA TREKs model is a supplemental program and, therefore, serves as a resource for students needing extra support and scaffolding to achieve mastery. Materials state that the program is intended to “Bring differentiated instruction together with Tier 2 and Tier 3 support. Varying learning needs are addressed organically through the focus of each segment.” Materials state that there are options to assign each segment for small, group, independent practice, intervention, and test preparation.

Materials provide enrichment activities for all levels of learners.

- The materials do not provide enrichment activities that account for learner variability. The TREKs are an additional resource for targeted review, practice, and intervention. For example, in TREK 5.10B, Apply, students participate in a mission to conduct research. The materials ask the student to complete a research proposal to determine if an exoplanet can support life. The materials provide slides that the student can interact with by reading, filling in blanks, dragging, and dropping information to complete the mission. The materials do not include any enrichment activities to study sedimentary rocks and their formation further.
- The materials provide engaging intervention materials but do not provide enrichment activities. For example, in TREK 5.9A, Apply, students complete a mission to help a friend find their way after getting lost. The student completes skills practice slides on interpreting a map, identifying patterns of shadows, and using tools for analysis. To complete the mission, the student responds to questions. Students make a claim about shadow length throughout the day and provide evidence. The student also chooses a reasoning statement from a list of options. While the structure of the TREK provides supplemental instruction, the Apply segment serves as the conclusion and does not suggest further enrichment activities such as the study of maps, shadows, and navigation tools.

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

- The materials do not provide just-in-time learning acceleration for all students, as this occurs during core instruction, and the TREKs are supplemental by design. The RPA Framework & TREK Guide states, “RPA TREKs are supplementary curriculum materials designed to support a research-driven interleaved practice that enhances sustained learning around your primary curriculum.”
- The lessons do not include recommendations for just-in-time scaffolds to develop productive perseverance in learning in the moment. Materials provide a teacher overview and answers to slides. Materials do not provide additional support or tips for teachers if students continue to struggle with mastering the content. In Practice A Investigation: Planning, an answer key is provided along with a description: "Students review the physical properties of the three materials. Recall that students will recognize the mechanical methods to separate beads based on their physical properties. Wood and plastic beads will float, and metal beads can be magnetic if they contain iron." Additional information or tips are not provided if students do not master the task.
- The materials do not provide support and resources for students ready to accelerate their learning. Materials state a supplemental learning model to streamline reteaching and are designed for versatile delivery for any classroom setting and all learners. Through the TREKs, students follow the same structure between each segment. However, no resources or support are provided for students to accelerate their learning.

RPA TREKs Grade 5

Indicator 7.2

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

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

Materials include developmentally appropriate instructional approaches to engage students in the mastery of the content. Materials support some flexible grouping (e.g., whole group, small group, partners, one-on-one). Materials do not consistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation. Materials represent a diversity of communities in the images and information about people and places.

Evidence includes but is not limited to:

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

- Materials engage students in the mastery of the content through a small variety of developmentally appropriate instructional approaches using their Recall, Practice, and Apply Framework. For example, materials include some opportunities for students to observe inquiry-based learning activities. Throughout each Practice and Apply stage, TREKs provide opportunities to observe simulated investigations.
- In 5.6AD Physical Properties of Matter: Apply, students test relative density using graphics of beakers with blocks of wood floating in them at different levels. On another slide, students are expected to find the mass of each block of wood. Students see a picture of a triple beam balance with the mass typed above and an arrow pointing to the balance. Rather than read the mass from the triple beam balance, students read the mass by using the pictures from the previous slide. Students show their learning by completing a Claim-Evidence-Reasoning slide. Students type in their claim and evidence to answer, "Why do some types of wood sink in water more than others?" Then, they move the best reasoning description from a selection of three into their box.

- Students are able to use physical tools to measure and collect data. For example, materials include Custom Investigation Handouts (CIH) in each Practice A, allowing students to create their own investigation. In the CIH, students are able to create their own investigation. Students create a research question using the sentence stem “How does _____ affect _____?” Students then describe the evidence they will collect as well as make a prediction. Students then plan their investigation and decide if they are doing a descriptive investigation or an experimental investigation. Students continue planning their investigation, writing down how they will collect the data, the number of trials, the materials needed, and the safety steps required. Students finally get to conduct their investigation, collect, analyze, and interpret the data, and then draw a conclusion.

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

- The materials support a variety of instructional groupings (e.g., whole group, small group, partners, one-on-one). The materials are designed for students to complete slides through the online platform. Materials state it is “easily projected for whole group, small group and independent practice.” However, no guidance or suggestion is provided. For example, materials do state a clear purpose and learning goals for independent practice activities contained in units and lessons. The materials do not explicitly explain how to use their product in these different instances. The slides are interactive and assignable to different students as needed, but consistent guidance is missing. Lessons do not include explicit teaching but do provide opportunities for students to practice a routine for how to work independently in lab investigations. All TREKs investigations are direct, descriptive, and comparative investigations where students complete activities to practice Science skills through data collection and finding evidence based on what they read and observe. In RREK 5.12B, Practice A, students collect and interpret data in a simulated comparative investigation about populations of consumers and producers in an ecosystem. They create models of ecological pyramids. They interpret a food web to predict the effects of the loss of a producer. The materials do not explicitly explain how to use their product in these different instances. The slides are interactive and assignable to different students as needed, but consistent guidance is missing. For example, in TREK 5.11A, Practice A, the student completes the Digital Student Journal individually. Students review effective and non-effective strategies to communicate. Students select the correct response to a statement but do not discuss it with anyone.
- The materials do not provide guidance to teachers on when to use specific grouping structures based on the needs of students. Materials do not supply a guidance document on instructional strategies that share the importance of providing multiple opportunities for students to learn from each other in science classrooms. For example, materials allow the teacher to assign each TREK to individual students. The materials do not guide students working in groups or individually. Materials provide a digital journal that students complete individually, such as TREK 5.6AD, Practice A, which provides an investigation on jewelry making. The teacher's instructions do not contain instructions on flexible grouping.

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

- The materials provide limited types of practices modeled and guided practice**.** For example, the materials contain some modeling and guided practice. It can be seen in TREKs 5.10B Practice B,

as students complete an activity where they read a passage and respond to a color-coded description Note Card chart. The reading passage contains sentences highlighted in the color that corresponds with the Note Card chart. The following slide offers the same activity but takes the highlight out of the passage. This is a limited format for modeling what students should look for when reading because it is not explicitly discussed with students, such as through a think-aloud in the Digital Student Journal. The majority of the TREKs reside in the area of guided practice although the guidance is not fully developed, such as providing clickable areas for help, glossaries, or other supports to guide their work. The TREKs are designed for students to click through the experiences and can be used with or without an instructor physically present to model and guide practice. The limited amount of modeled and guided practice is likely due to the publisher's statement in their RPA Framework and Trek Guide that RPA TREKs is a "supplementary curriculum materials designed to support research-driven interleaved practice that enhances sustained learning around your primary curriculum." The materials are designed with the premise that a primary curriculum is being utilized that would provide a greater amount of modeling and guidance, as Tier 1 materials often do.

- The materials provide few opportunities for students to engage in collaborative practice. For example, TREKS 5.10A Water Cycle & Weather the students complete the Digital Slide Journals for Recall, Practice A, Practice B, and Apply individually and include very few designated opportunities for students to engage in collaborative or cooperative learning activities. The TREks do include a Custom Investigation Handout within the Practice A teacher instructions for the 5.12A, Interdependence, TREK. The instructions state, "The purpose of this Custom Investigation Handout (CIH) is to differentiate instruction to allow for individual, small group, or whole class hands-on investigating for either descriptive or experimental investigations. The investigations can be modeled, guided, collaborative, or independent." However, just prior to this statement, the instructions also state that "students may choose to conduct their own investigation." The fact that students may choose whether or not to engage in collaborative learning only partially meets the standard of consistently supporting collaborative practice.
- The TREKS provide numerous opportunities to work independently. For example, The objective for 5.6BC states that each student will be able to identify the physical properties of mixtures and solutions and be provided a digital student journal with eight slides for students to work through individually and submit at the end. Also, in TREK 5.7A, Patterns of Motion, Practice A, Digital Student Journal, Slide 19, students independently complete an investigation about force and energy data. "Students explain the process of selecting the statue they can lift since they will be able to pull with more force than its weight, therefore causing the statue to move. Without the forces acting on it, the object would not move."
- The materials provide insufficient teacher guidance and structures for the effective implementation of multiple types of practices. For example, the materials explain that TREKs are differentiated but offer virtually no guidance on how to support and use groupings for collaborative learning. Materials provide student objectives, slide descriptions, and answer keys, but they do not guide how to implement the slides or provide information on how to model and guide appropriately for students aside from mentions of how to address misconceptions, and this guidance is limited. For example, in TREKs 5.12A Practice A, the teacher instructions state that to address a misconception that plants absorb water through their leaves, teachers should "counteract this misconception throughout the segment, emphasize that the air and water the plants are interacting with are part of a healthy ecosystem." However, there is no structure or guidance for how best to do this. There is also no structure whereby teachers could recognize that students hold this misconception since there are no questions for the teacher to pose and no discussion, be it teacher to student or student to student. If these types of guidance and

structures are not present, then it's difficult for a teacher to model or provide guided practice to effectively implement the materials and support student learning.

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

- Materials partially represent diverse communities using images and information that are respectful and inclusive. For example, in TREK 5.7A, the Recall contains a Phenomenon image of seven boys and girls of different races. Practice A for TREK 5.7A contains a black male pushing a young black girl in a swing, several adults moving a vehicle, two separate pictures of kids playing soccer, and a little boy riding a scooter.
- For example, TREK 5.13A, Practice B, shows a picture of a group of kids. They are of different races and genders. Depictions of places are respectful and inclusive, with an emphasis on community strengths, resources, and unique characteristics. TREK 5.12B introduces the impact of a simple behavior of how bringing a snail home from Hawaii to Florida almost destroyed the ecosystem. The Giant African Land Snail had no predators in Florida.

RPA TREKs Grade 5

Indicator 7.3

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

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

Partial Meets | Score 1/2

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

Materials include some guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. Materials do not encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.

Evidence includes but is not limited to:

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

- Materials include some guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. Materials provide general tips for working with emergent bilingual students. For example, in the overview, teacher instruction and videos help students better understand the concepts being taught.
- Materials provide an ELPS Spotlight strategy for Visual Scaffolding in the Recall portion of TREK 5.6AD. The strategy is for foldable notes for students to define and illustrate key vocabulary words. ELPS tips for beginning EB students in this spotlight include simplifying vocabulary words and providing visual aids along with using real-life objects to support the definition. The teacher's instructions do not include these instructions–only the spotlight instructions include them.
- For example, in TREK 5.6BC, Mixtures & Solutions, Practice A, in the teacher Instructions in a yellow box, the teacher is provided ELPS Tips for scaffolding for beginner language learners as well as a set of tips for intermediate and advanced language learners. The tips are not specific to the lesson but do give teachers guidance on how to scaffold for learners. The tips read as follows: "ELPS Tips for Beginning EB students: Provide simplified texts or videos and use visuals and other graphic organizers to help students understand the science topic. Assign groups with fewer members and provide more guidance and support to students. Provide sentence frames or other support tools to help students express their ideas and observations using academic language." ELPS Tips for Intermediate and Advanced EB students: "Encourage students to use

more complex sentence structures and academic language to express their ideas and observations. Encourage students to use evidence from the science stations to support their observations and explain their reasoning. Provide challenge activities, such as having students research and present additional information related to the science topic or having them design their science station to explore."

- For example, in TREKS 5.9A, Earth's Rotation, Recall, the Teacher Instructions materials provide an ELPS spotlight "ELPS Tips for Beginning EB students: Use simple sentences or sentence stems to guide student writing, such as "The _____ is a _____" or "The _____ does _____." "Tips for Intermediate and Advanced EB students: Provide more complex sentences or sentence stems to challenge student writing, such as "The _____ is essential to _____ because _____" or "The _____ is similar to _____ because _____."
- In 5.12B Practice B Student Self Advocacy-Use A Bilingual Dictionary, the materials include students will use a bilingual dictionary to build their vocabulary and comprehension of stability and change in ecosystems.

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

- Materials do not encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. Materials include ELPS Tips for Beginning, Middle, and Advanced EB students, such as providing a picture or visual aids to support the understanding of vocabulary words. Materials mention students' first language in some ELPS Spotlight box Strategies. For example, Connecting to the Real World in TREKs 5.6AD Practice B suggests, "Allow students to brainstorm in their first language or provide bilingual support if possible." This is a tip for beginning EB students. Another suggestion in the same box for brainstorming states, "Encourage them to think in any language they feel comfortable with." The materials do not include tips for teachers about the importance of allowing students to express their understanding in their first language and practical suggestions for teachers who do not speak the student's first language. Materials do not provide links to resources for translation or support in first languages.
- In TREK 5.13B, Recall, the materials use simple sentences or sentence stems to guide student writing, such as "The _____ is a _____" or "The _____ does _____." Also, recommendations to allow students to work with a partner or in a small group to complete the matching activity and to provide language modeling and support as needed. Materials do not strategically use students' first language as a means to linguistic, affective, cognitive, and academic development in English. In 5.13B Recall, materials provide Tips for Beginning, Middle, and Advanced EB students, such as providing sentence frames or graphic organizers to support comprehension and organization of science content.
- For example, in TREK 5.10C, Landforms, Recall, the Teacher Instructions do not guide the use of students' first language. Materials include: "Use simplified language and visual aids such as pictures, diagrams, and videos to introduce the concept of landforms." For example, in TREK 5.10C, Landforms, Practice B, the Teacher Instructions do not include strategic use of a student's first language. Materials include: "Provide Vocabulary Support: Provide vocabulary support through word walls or flashcards to help Intermediate ELLs learn and retain new words."
- The materials provide guidance to teachers about how to strategically develop learners using tips but do not give an account for languages other than English that may be the student's first language. For example, in TREK 5.9, Earth's Rotation, the teacher overview provides guidance to teachers on best practices for ELPS but does not provide actual use of students' first languages.

RPA TREKs Grade 5

"Emergent bilingual students may come from diverse linguistic and cultural backgrounds and may have varying levels of proficiency in English. The English Language Proficiency Standards (ELPS) provide a framework that is designed to support emergent bilingual students in developing their English language skills while learning academic content across four domains of language development: listening, speaking, reading, and writing. Helpful literacy tasks to support all levels of language acquisition proficiency are included in each segment of this TREK."

RPA TREKs Grade 5

Indicator 7.4

Materials provide guidance on fostering connections between home and school.

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

Partial Meets | Score 1/2

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

Materials provide some information to be shared with students and caregivers about the design of the program. Materials do not provide information to be shared with caregivers for how they can help reinforce student learning and development. Materials do not 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.

- Materials provide information to share with students and caregivers about the design of the program. Materials include the RPA Framework and TREK Guide to provide information to the Family/Caregiver Guide or resources to communicate with caregivers about the design of the program. The program offers an Overview page for students that states the central concepts, misconceptions, and an activity description. The information provided on the student-facing side is the same provided on the teacher-facing side.
- Materials provide information about the design of the program, but it is unclear if the information is meant for educators only or families and educators. For example, in the New Content provided to reviewers, a document titled RPA Framework TREK Guide provides the RPA Framework showing what each letter in RPA represents and what is included in each segment. The following statement explains the program in a quick summary with a link for more information, "Our low-prep Recall-Practice-Apply (RPA) TREKs supplemental learning model streamlines reteaching and is designed by teachers for versatile delivery for any classroom setting and all learners' needs." Materials provide an RPA-TREKs Navigating Overview video that gives a tour of the portal and how to navigate the system. Provides an overview of what to expect when you log in for product reviewers. The video shows how teachers can navigate the program.

RPA TREKs Grade 5

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

- Materials do not provide resources and strategies for caregivers to help reinforce student learning and development. Materials do not provide resources and strategies for caregivers to help reinforce student learning and development. For example, in TREK 5.6BC, Mixtures & Solutions, Overview, there is no section or link to provide information to caregivers about supporting student learning and development in understanding scientific concepts about mixtures and solutions or how caregivers can reinforce learning at home.
- Materials do not provide at-home activities for caregivers to help reinforce student learning and development. For example, in TREK 5.9A, an ELPS Spotlight provides a strategy of visual scaffolding through the use of creating a multimedia presentation. Students reinforce their learning and understanding of rotation by conducting research and presenting the information using a digital tool. The teacher is to encourage them to use images, videos, and audio to support their content. Students are able to reinforce their learning, but there is no indication that the students are to work on the assignment at home or with caregivers.

Materials include information to guide teacher communications with caregivers.

- Materials do not include teacher guidance for communicating with caregivers. As a Tier 2 and Tier 3 supplemental curriculum designed for teachers to help students with practice, intervention, and test prep, RPA TREKs does not produce programs to support communication between home and school. For example, in the RPA Framework & TREK Guide, the TREK Components states a brief paragraph of all components. Information to guide teacher communication with caregivers is not listed. Materials provide guidance in the Teacher's Instructions providing implementation tips, answer keys, and ELPS strategies but no guidance in communicating with caregivers. The RPA Framework & TREK Guide gives teachers guidance on when and how to assign materials and how to navigate the program but does not guide teachers in communication with caregivers.

RPA TREKs Grade 5

Indicator 8.1

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

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

Partial Meets| Score 1/2

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

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

Evidence includes but is not limited to:

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

- The materials include a cohesive scope and sequence that shows how science knowledge and skills are addressed over the course of the entire year. Materials provide a Framework & TREK Guide that provides an At-A-Glance that separates the TREKS into specific weeks. For example, October begins the Transition to Matter & Energy, and in Week 1 students work on 5.7B Forces & Experimental Design, in Weeks 2-3 students work on 5.6AD Physical Properties of Matter, and then in Week 4 students work on 5.6BC Mixtures and Solutions. Materials provide a teacher dashboard that lists objectives as essential knowledge and skills students complete throughout each TREKS folder. Each TREK includes an integrated standards alignment of TEKS, ELPS, Scientific Engineering practices, recurring themes and concepts, and cross-curricular standards. Each TREK is a stand-alone unit, and TREKs can be taught in any order. Materials include specific information about the sequence of content or a broad overview of all grade-level TEKS covered throughout the program but still offer flexibility for a teacher to adapt the program to meet the needs of their class.
- The TEKS-aligned Scope and Sequence details the order in which knowledge and skills are presented and revisited. Materials provide varied, interactive activities within each TREK. , Materials provide information that outlines the sequence of instruction toward the end-of-year outcomes. The Suggested Scope & Sequence with Interleaved Practice provides a calendar organized by weeks showing the Primary Curriculum Delivered and providing when which individual TREK would be best assigned. A guide is provided explaining the TREK's name and the associated TEKS, and a key demonstrates what color hexagon represents what TREK segment

and the duration of the activity. Each segment is then organized into a calendar using the color-coded hexagons to demonstrate when they are to be covered. For example, 5.8C Light Recall occurs in Week 2 of November and in Week 3 of February, Practice A in Week 2 of March, Practice B occurs in Week 4 of February, and Apply occurs in Week 2 of January.

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

- The materials provide some clarity for teachers in understanding how activities and experiences connect concepts and SEPs. Materials include an integrated standards alignment overview in the teacher instructions for each individual module. The Overview includes teacher instructions that highlight the central concepts and misconceptions and describe each activity for each skill. The Overview also includes Scientific and Engineering practices that occur during the Practice A, B, and Apply stages of the lesson, but materials do not provide specific teacher guidance for facilitating student-made connections.
- Materials do not provide teacher guidance within the TREK for facilitating student-made connections. Students make connections across core concepts within some TREKs. For example, in Lesson 5.7A Patterns of Motion: Apply, students make engineering connections when they identify any significant features, patterns, or sources of error in order to gain inquiry into the concept of force and motion. No teacher guidance is given to facilitate the connection between SEPs and force and motion concepts.
- Materials do not provide specific teacher guidance for facilitating the student-made connections of RTCs. Students make connections between recurring themes and concepts within TREKs. For example, within TREK 5.7B: Practice B, students write about the effect safety helmets have on protecting athletes from the effects of forces. In the Practice B Teacher Instructions, materials do not provide any guidance for facilitating student-made connections of cause and effect.
- The materials do not provide teacher guidance to help students make connections between TREKs over the course of the year. Materials provide a Recall section within each TREK in which students review science concepts and vocabulary (although standards and previous grade-level standards for the Recall are not identified). In the Overview, materials state that during the Recall, “Students recall prior knowledge of the basics of physical science and how we can directly observe changes in motion when objects are pushed or pulled,” but materials do not provide clear guidance as to how the recall activities connect to other TREKs.The materials provide a Suggested Scope & Sequence with Interleaved Practice that shows how lessons can be taught throughout the year, but the material does not provide clear instructions on how students can create connections through the lessons.

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

- Materials include opportunities for intentional practice and spiraling of previously taught knowledge and skills from earlier lessons and grade levels. As mentioned above, each TREK contains a four-part ongoing cycle of *Recall, Practice A, Practice B*, and *Apply*. Students complete a short task reviewing content or concepts from a previous TREK or grade level in the Recall portion of the TREK and then complete two activities to practice the lesson’s knowledge and skills. Opportunities to review content from previous lessons, modules, or grade levels are only briefly included within the Recall portion of each TREK. Practice activities are limited to each lesson’s content; materials include spiraled practice throughout the year using the Scope & Sequence Interleaved Practice.

- For example, in the Recall portion of the Physical Properties of Matter TREK, materials provide a previous grade level TEKS that are reviewed in the segment after listing the objectives. Materials provide a short text that reviews concepts about matter and physical states of matter that were covered in previous grade levels. Students review pertinent vocabulary terms, such as *matter*, *volume*, *state (phase)*, and *magnetism* by dragging and dropping terms to definitions. Materials identify which previous grade-level TEKS are reviewed within the Recall section. In another TREK on Mixtures and Solutions, during the Recall portion, students read a short text that reviews what mixtures are and how solutions are examples of mixtures. Students review key vocabulary terms such as *physical properties*, *substance*, *mixture*, and *dissolve* by dragging and dropping terms to definitions. Most key vocabulary terms review content from previous grade levels.
- Each of the Practice portions of every TREK includes a Pulling it Together section in which students use the information they have learned from the TREK to answer questions. As students complete tasks and answer questions, students practice applying some of the knowledge and skills learned within the TREK. In the Physical Properties of Matter TREK, students read a short passage and use the information to select answers and classify materials based on their properties.

RPA TREKs Grade 5

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

Evidence includes but is not limited to:

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

- Materials provide teacher guidance on how to access the materials. The materials provide an orientation video that gives an overview of what to expect from the curriculum. For example, the orientation video shows navigating the dashboard and TREKS folder. The video explains the components provided for each standard in the TREKS folder, along with the student and teacher view of the materials.
- The materials include some teacher guidance within the overview section of each TREK to support teachers in understanding how to use some materials and resources as intended. Each TREK is provided with an overview, which includes a description of the central concepts, misconceptions, student activities, standards used or applicable, and English Language Proficiency Standards (ELPS). Within each section of the TREK, materials include a short list of needed digital student journal slides for the teacher.
- Materials provide scaffolds and supports for student learning, and materials include teacher guidance on how to use the supports. For example, in TREK 5.9A *Earth's Rotation* Overview, materials include a chart of sentence stems to assist beginner and emergent bilingual students;

in the teacher instructions, the materials provide the exact slide where the students will be able to utilize the sentence stem activity.

- The materials offer an overview for guidance and expectations, but clear instruction is not provided in every part of the material. For example, in TREK 5.6AD, the Recall section states, "Students read a brief passage, check vocabulary understanding, complete a bubble map, and practice measurement, comparison, and classification skills. They also complete a brief reflection on what they knew about the terms up to the present." While the materials explain what the students are going to do in the overview, there is no guidance on what is expected of the teacher. In another part of the same Recall section, for the What is Happening activity, the materials state, "Teachers a good opportunity to enhance student understanding of density is giving them a brief opportunity to probe what they've observed in the slides pertaining to density is true." However, the activity is not described to the teacher any further until the teacher reviews slides prior to assigning them to students for understanding of the activity. The student slides give an example of "Stacked" saltwater and inform the students how to create their stack. The teacher instructions do not include information about how to create the density tower. Students receive instructions on how to create the density tower.
- The materials are organized in a way that facilitates ease of implementation and use. Materials are organized the same way for each TREK; materials included within every TREK have the same four sections and correlating student slides. Materials are entirely digital, so there are no equipment or supplies to store. Once teachers select an individual TREK, teachers can use the blue button labeled "Assign" to assign a portion or all of the TREK to individual students or a group. After assigning TREKs, materials redirect teachers to a calendar to select the date that the assignment is to be completed.

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

- The materials include science standards correlations for lessons units, lessons, or activities within the context of the grade level in the overview for each TREK. The Overview includes a description of the phenomena, SEPS, and standards covered within the TREK. Teachers can search for individual TEKS by typing in the standard or by selecting the Strand. Then names of each TREK are based on the science objectives covered. Similar TEKS can be grouped within a TREK, and strands can include more than one TREK. For example, the Matter and Energy strand contains 2 TREKS. One TREK combines TEKS 5.6A and 5.6D into a TREK 5.6AD Physical Properties of Matter. The other TREK combines TREKS 5.6B and 5.6C into a TREK titled Mixtures & Solutions.
- Materials list standards from cross-content standards for ELA and Math in the Overview. The teacher instructions explain how the cross-content standards correlate to the context of the lesson. For example, the Overview tab for the Complete Circuits TREK lists math and reading language arts standards. Materials list several ELA standards related to comprehension in the TREK overview; however, within the designated section (Practice B), materials do not indicate when students complete tasks that include the ELA standards. In another TREK Overview (for TREKs 5.12A), materials include two math TEKS listed under Practice A, including one standard that students will graph in the first quadrant of the coordinate plane. In the teacher instructions, teachers are provided the math objectives for the corresponding activities.

RPA TREKs Grade 5

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

- The materials do not include a comprehensive list of all equipment and supplies needed to support instructional activities. Materials do provide ELPS strategies that contain what materials are needed for a Collaborative Learning strategy. However, materials do not include a comprehensive list for the entire program to support instruction. Each TREK is used within an online platform; physical materials and equipment are not needed for the majority of the activities. TREKs utilize virtual activities such as drag-and-drops and simulated descriptive investigations. The TREKs Overview states when there is a "Simulated descriptive investigation," but the only materials provided are the slide number for each activity. Students also type responses to questions and tasks within each TREK. For example, in TREK 5.6AD Physical Properties of Matter Apply section, students compare, contrast, and identify unknown objects based on their relative density. In the digital student journal, students compare images of three pieces of wood. Each block of wood is shown floating in its beaker of water. Students must type the letter of the block of wood on a scale of less dense to most dense. Next, students compare the mass of each block of wood by typing the mass of each block displayed on a triple beam balance into a table.
- Some activities do require materials and supplies, but the materials do not include a comprehensive list for the entire program. For example, in TREKS 5.12A Practice B, an ELPS spotlight is provided highlighting a Collaborative Learning Strategy that requires the following materials: Field journals for each student, Pictures of American Robin, Great Blue Heron, and Eastern Meadowlark Multimedia presentation tools (e.g., PowerPoint, Google Slides). Materials are only provided in the ELPS Spotlight in the lesson and not included in the Overview or elsewhere in the materials.

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

- The materials do not provide teacher guidance for safety practices and grade-appropriate use of safety equipment during investigations, in accordance with Texas Education Agency Science Safety Standards. Because materials primarily utilize an online platform for investigations, students do not physically conduct investigations or need safety equipment to complete assignments. For example, students collect and analyze data in a simulated descriptive investigation to determine how to separate mixtures. Pictures, diagrams, and drag-and-drop features allow students to simulate how they would separate wood, metal, and plastic beads.
- Materials include some student guidance for safety practices and how students can use age-appropriate safety equipment during lessons. In TREK 5.6AD Practice A, materials include an investigation for students. The TREK Overview states, "Students read about the experiment they will be conducting and the materials they will use." The Digital Student Journal provides the steps for the investigation, including filling all four cups with the same amount of boiling water. The activity does not include student guidance for safety practices with this investigation or using safety equipment in this lesson. In TREKs 5.12A Practice A, students complete an activity that provides a comprehensive list of safety equipment and practices and must select the materials and practices needed for the investigation they are analyzing.

RPA TREKs Grade 5

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.

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

Evidence includes but is not limited to:

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

- The materials include support for specific scheduling considerations for covering required science content for the grade level within various schedules. The RPA Framework & TREK Guide includes a Suggested Scope & Sequence with Interleaved Practice to provide support in program implementation. Materials provide a suggested calendar for each segment of each TREK. The materials also provide a flexibility that allows each teacher to adapt the materials for what they view as best but offers guidance. Teachers can choose when they want an assignment or specific TREKS to be covered over the year. Teachers can select the TREK, and RPA segments, and assign them to targeted students or classes, due dates, and time frames.
- The materials include guidance and recommendations on the required time for lessons and activities. Each TREK includes four components students complete: Recall, Practice A, Practice B, and Apply. The RPA Framework & TREK Guide notes that Recall would best be utilized first but Practice A, Practice B, and Apply can be completed in any order.. The materials provide a sequence showing the Interleaved Practice where the TREK segments are completed in different weeks throughout the year. Materials provide guidance or recommendations on how long each section of the TREK should take to complete stating that the Recall should last 20 minutes and Practice A, Practice B, and the Apply should take 45 minutes. Materials also provide the consideration that teachers may break up each segment across more than one class period as needed. Materials within each lesson include appropriate pacing suggestions for the grade level. Students complete activities in the Digital Student Journal for each segment. For the Recall section, students write about a shown image that depicts a phenomenon associated with the TREK. Students review vocabulary after a short text preview. During Practice sections and the Apply section, students read and then complete drag-and-drop and constructive response

activities. At the end of the TREK, students drag and drop an emoji about how they feel about completing the TREK and are led to submit their answers and show solutions. Some of the drag-and-drop activities include students matching parts of the investigation to the terms and definition, selecting if the strategy is effective, dragging boxes into a t-chart with one side labeled safety equipment and the other side labeled safety practice. Constructed response activities include students looking at a data table and typing responses to two questions about the table, typing numbers and letters in a table using other tables with data from the investigation, and then answering questions and including evidence from the data collected in the experiment.

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

- Materials provide guidance for strategic implementation that ensures the sequence of content is taught in an order consistent with the developmental progression of science. Materials provide a Scope & Sequence At-A-Glance showing where primary instruction would best take place in using the TREKs materials. The Suggested Scope & Sequence with Interleaved Practice ensures that the Recall segments are introduced before the primary instruction is delivered. For example, 5.7A Recall is introduced Week 2 of September, and then the primary curriculum should be delivered Week 3 of September. The materials have Recall is introduced prior to the Practice and Apply segments to ensure students review before practice.
- Materials utilize a sequence within each TREK that shows a developmental progression within the learning cycle, but it is noted that teachers can assign any part of the TREK at any time, based on student need. Materials state that aside from Recall, segments do not have to be sequenced in the order presented. The Scope & Sequence with Interleaved Practice provides TREKs that follow the order of Recall, Practice A, Practice B, Apply, and some TREKs that follow a different order to demonstrate that segments do not have to be assigned in order. For example, in 5.7A, students complete the tasks in sequential order. Students complete Recall in Week 2 of September, Practice A in Week 4 of September, Practice B Week 2 of October, and the Apply Week 1 of December. In TREK 5.12A, the Recall is introduced in Week 3 of February, followed by Practice B, then Practice A and Apply.. Each TREK contains Recall, Practice A, Practice B, and Apply. In recall, students recall prior knowledge of the basic needs of all organisms. In Practice A, students complete a simulated comparative investigation. In Practice B, students read and reflect as field scientists. The last segment is Apply, where students complete a task-based problem. Content within TREKs is organized in a sequential manner, materials provide support in implementation through the Interleaved Practice.

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

- Materials designated for the course are flexible and allow for adjusting to local time and scheduling constraints. Materials provide a Scope & Sequence At-A-Glance, including breaks and weeks designated for review. A note is also included stating that individual district calendars may vary. Materials also provide a Suggested Scope & Sequence with Interleaved Practice that states that teachers may consider breaking up segments and stretching assignment due dates or even supporting students to interact witha segment more than one time. While materials do not provide detailed suggestions for scheduling, such as how to implement the materials with school years of varying length, four-day weeks, and online schools, materials can easily be adapted to fit such scheduling constraints.

RPA TREKs Grade 5

- The materials include activities that can be completed within one school year. Materials have a total of 17 TREKs, .and guidance is provided in the Suggested Scope & Sequence with Interleaved Practice in how each TREK is divided throughout the course of a school year.

RPA TREKs Grade 5

Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Yes, the digital materials include an appropriate amount of white space and overall design that does not distract from student learning. For example, 5.6BC Mixtures & Solutions Practice B slide 9 student materials are appropriately designed to support student learning. The slide has a clear Title, Instructions are clearly labeled, the text in the passage is in a font large enough to easily read and not seem overwhelming, and the answer box is highlighted yellow to draw student focus.
- Materials enhance student learning without being distracting or chaotic by maintaining a constant slide pattern. Each slide has a title with similar graphics, such as the Pulling It Together has a star with an arrow. Slides use a mixture of graphics and photographs. Slides 10, 11, and 12 have extra blank spacing. Materials do not fill the slides with extra graphics. The slides have the question, answer box, and related images only.
- The design of the materials includes appropriate use of white space, such as the teacher guide. Each TREK has a one-page teacher guide broken into the same order. Extra graphics are not added to fill the blank space to the right of the page. Yellow boxes are used to highlight ELPS strategies.

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

- Yes, the materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, in Practice A, slides 3 and 4 show a photo of a river meeting the sea to show how muddy river water begins to mix with the

salty sea. This is a real phenomenon that links learning. To practice understanding mixtures, the materials use a photograph of jewelry made with beads. Beads are an age-appropriate item to use for young students.

- Student slides display one image per slide and link the image to the task on each slide. For example, the material uses jewelry making with beads when addressing separating mixtures by physical properties. On slide 5, a photograph of students and a bowl of mixed beads are shown, along with a passage about jewelry making and how easy it is to mix the beads. On slide 6, a photograph shows beads separated into jars with a brief passage about separating mixtures by physical properties. Slide 9 uses graphics of different beads and has students drag and drop the metal beads into the answer box.
- The last slide on each TREK student deck asks students to select an emoji representing how they feel at the end of the TREK. This is an age-appropriate measure of students' feelings about their learning in the TREK.

Materials include digital components that are free of technical errors.

- No, the materials do not include digital components that are free of technical errors. In the teacher guide, the materials duplicated a paragraph for slides 17-18. "Students will need an opportunity to review the meaning of conductors and insulators. A common mistake students make is confusing the meaning of the two and not including electricity. The compiled data table allows students to see trends, features, and patterns in real time. Students compare how each material insulated vs. conducted thermal energy. Students will need an opportunity to review the meaning of conductors and insulators. A common mistake students make is confusing the meaning of the two and not including electricity. The patterns in the data help show the difference between a conductor and an insulator. The material that insulated the thermal energy the most (aluminum foil) was the best conductor."
- Materials contain grammar errors. For example, in TREK 5.6AD, the overview has a word spelling correctly and incorrectly. "Gasses are invisible and are present in the air even though they cannot be seen. Gases are matter." Both refer to the plural form of gas. It should be consistent in spelling. In TREK 5.6AD, Practice A, slide 4, an error can be confusing when reading, "When spacecraft return through Earth's atmosphere." In TREK 5.6AD Apply, the wording may confuse some students. For example, in slide 5, "You quickly realize, however, that an intern is at the bottom of the job pole." TREK 5.6BC, Apply, slide 7, in the Digital Student Journal, has a question mark at the end of a sentence that needs a period. "How do you know which one is which?" she asks?"
- Materials contain technical errors or are incomplete. In 5.6AD, Apply, in the teacher guide, slides 8 and 9 do not have the slide description complete: "Description: Students TBD" with TBD in pink font instead of the complete slide description. Slide 12 in the teacher guide has incorrect lettering for the answer choices: "Block Y Volume: 480 cm3 Block Y Volume: 200 cm3" should be Block Z Volume: 200 cm3.

RPA TREKs Grade 5

Indicator 9.2

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Yes, materials integrate digital technology and tools that support student learning and engagement. For example, materials provide digital student slides which students utilize to interact with science concepts. TREK 5.9A, Earth's Rotation, includes sixteen slides that provide students the opportunity to read and answer questions about Earth's rotation. For example, TREK 5.6AD, Physical Properties of Matter, provides a Digital Student Journal. Practice A materials provide slides 12-19, in which students set up an experiment and collect and analyze data throughout the slides. Students investigate the properties of matter that conduct/insulate heat

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

- Yes, materials integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. For example, in TREK 5.7A, Patterns of Motion, materials include Recurring Themes and Concepts 5.5B, cause and effect relationships. Practice A includes a procedure that explains the cause and effect of kicking a ball. Materials provide guidance on forces that are applied to a ball and how

the force will make the ball change and move. Practice B slide 7 includes an article on cause and effect size and direction for forces. Apply slide 19 includes a question on cause and effect.

- For example, in TREK 5.10A, Water Cycle and Weather Practice, students use science and engineering practices. Materials include slides 11 and 12, where students propose solutions supported by data.

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

- No, materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. For example, RPA Framework and TREK Guide suggest the Digital Student Journal can be “Individually assigned for each segment with instant and continual feedback. For example, TREKS 5.8B, Complete Circuits, Recall, Teacher Instructions for Digital Student Journal, slide 8 states the following: Brief reflection on what students know about the academic terms up to the present. Encourage full sentences in the written descriptions. Students do not utilize technology for peer-to-peer collaboration or student-to-teacher collaboration.

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

- Yes, materials integrate digital technology that is compatible with a variety of learning management systems. The RPA TREKS Navigation Overview video (5 minutes 31 seconds) states that the program is “mobile device friendly and readable”. The RPA Framework and TREK Guide state that the program is a low-prep supplemental material for versatile delivery in any classroom. Materials do not specify which management systems are compatible with the program. The RPA Framework & TREK Guide indicates that in Spring of 2024, materials will be able to be managed through use of Clever or your Learning Management System.

RPA TREKs Grade 5

Indicator 9.3

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Yes, the digital technology and online components are developmentally appropriate for the grade level. For example, the TREKs Framework states materials present versatile lessons with teacher and student components on an easy-to-use platform. The materials include a Digital Student Journal, which provides innovative and interactive activities and assessments. Students observe pictures and write reflections. Students read brief passages and answer questions in response to the reading. Students are also given STAAR-based questions.
- Materials provide information that identifies how online and digital components align with grade-level science knowledge and skills. The materials provide related TEKS and ELPS for online and digital components within the TREKs framework within each TREKs in the Overview. Each Overview includes Central Concepts and Misconceptions, Segment Titles and Activities Descriptions, and Integrated Standards Alignment, including Texas Essential Knowledge and Skills (TEKS). The Treks framework includes a calendar that shows an example scope and sequence for implementing primary Science curriculum materials over the school year. Being supplementary materials RPA TREKs, teachers enrich and deepen the learning primary instruction learning experiences. TREK 5.12B Ecosystems & Flow of Energy Digital Student Journal Practice A materials provide students the slides Organize Data Digital Student Journal Slide 14. The Students calculate the sum of two variables. Students add the number of producers and consumers of each time interval to determine the overall number of organisms each year. Then, students write which type of organism had the greater population by year.

Students are analyzing the relationship between producers and consumers and how the population of either is affected. The materials are developmentally appropriate. In TREK 5.12C, Human Activities in Ecosystems, Apply, students read about the effect of fishing nets. Each student will be able to describe a healthy ecosystem and how human activities can be beneficial or harmful to an ecosystem. Students embark on a task-based mission alongside the Galveston Bay Dolphin Research Program to design a plan that will help reduce the impact of humans on the dolphin population. The materials present students with the mission of saving Dolphins, and through reading and observation of data, students learn about the effects of fishing on dolphin populations. The materials contain developmentally appropriate activities.

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

- Yes, the materials provide teacher guidance for the use of embedded technology to support and enhance student learning. Materials provide instructions and tutorials within the teacher platform on how to use the embedded technology. Materials provide an Overview of each part of the TREKs, which gives the directions for each activity. The materials include a video in the RPA Framework & TREK Guide which includes 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 provide specific teacher guidance for embedding the technology within lessons and assessments. The TREKs has a sample calendar in the framework for embedding the technology within lessons and assessments.

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

- No, the materials do not include resources for parents and caregivers on how to support student engagement with digital technology and online components. Materials do not provide tips for families on how to support appropriate student engagement with digital and online components. Materials do not provide online parent and caregiver webinars on relevant topics, such as educational materials and resources that they can use to support learning at home. Materials do not provide a Q&A for common questions parents may have regarding the appropriate use of digital technology and online components for supporting their learning and engagement at school.