Discovery Education Science Techbook for Texas Grade 5

Discovery Education Science Techbook for Texas Grade 5 Executive Summary

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

Grade	TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
Grade 3	100%	100%	100%	100%
Grade 4	100%	100%	100%	100%
Grade 5	100%	100%	100%	100%

Section 2. Instructional Anchor

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

Section 3. Knowledge Coherence

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

Section 4. Productive Struggle

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

Section 5. Evidence-Based Reasoning and Communicating

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

Section 6. Progress Monitoring

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

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- The materials include guidance that explains how to analyze and respond to data from assessment tools.
- The assessments are clear and easy to understand.

Section 7. Supports for All Learners

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

Section 8. Implementation Supports

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

Section 9. Design Features

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

Section 10. Additional Information

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

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Indicator 2.1

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Grade 5 materials allow students to read about how landforms have changed over time in Unit 3, Concept 3, Lesson 4. After reading the article, students practice what they have read by acting out the changes in various Landforms.
- The 5E instructional model integrates the TEKS, including scientific and engineering practices, into every lesson. Students can improve their science and engineering skills by showcasing their abilities throughout the year, such as, in Concept 2: Effects of Forces, Lesson 2: Creating a Catapult, Concept 3: Mixtures and Solutions, and Lesson 6: Hidden Treasures. Within the Hidden Treasures lesson, "Students will analyze a real-life application of the use of mixtures and solutions and gather evidence to explain that the properties and amount of matter of substances remain the same when they are combined in mixtures."

- Materials further suggest ways to develop and practice science and engineering skills by completing exploration stations. For example, in Concept 1: Comparing Matter, Lesson 2: Exploration Stations, students explore electrical conductivity and interact with several materials to test their objects. The teacher demonstrates with a laser, then moves students to complete the other parts of the investigation.
- Materials support mastery of a concept within each unit and lesson. For example, in Unit 2, Lesson 9, students complete an assessment of the different types of forces that affect an object. Within this formative assessment, students are given the choice of how to answer the question. The materials also provide teachers with a summative assessment.

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

- In each lesson on each concept, there are supports for the teacher to help connect the recurring themes throughout the lesson. The materials provide opportunities to make connections in Concept 1: Ecosystem Interactions, Lesson 3. Students explore a local ecosystem to explain biotic and abiotic interactions. Students record the interactions and then, further in the lesson, explain the environmental impact if the organism is removed. The teacher guides student thinking with scaffolding questions. Other opportunities to make connections are present in Unit 4, Concept 4. There are a series of lessons that explore the different changes that can occur in an ecosystem and how an ecosystem can affect habitats

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

- Students discover all core scientific information in each unit by strategically bundling concepts. The 5E Framework includes five concepts within each unit, each with its lesson based on 5E Framework: Engage, Explore, Explain, Elaborate, and Evaluate. Teacher support is provided throughout lessons. For example, Concept 1: Earth's Rotation, Lesson 5: Shadows and Light is supported with background knowledge and lesson facilitation. Further examples of the development of content knowledge can be seen in Concept 1: Force and Energy, Lesson 4. The students utilize a video to connect with the forces they use daily. The teacher guides students through a Turn and Talk to discuss equal forces in opposite directions and introduces unequal forces.
- Materials provide teacher support through the background knowledge documents found in the unit resources. The materials systematically develop students' knowledge and skills across the unit. For example, in Unit 3, Concept 3, students explore changing landforms. As the unit progresses, lessons build off each other, with students exploring a variety of landforms.

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.

- Materials provide opportunities for students to ask questions and plan investigations. For example, in Unit 3, Concept 3, Lesson 1, students work with electric circuits through real-world phenomena. Within the lesson, students revisit previously asked questions.

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- In Unit 2, Lesson 7, How Do Different Forces Affect Objects? students are asked to work in groups to develop claims that best explain the real-world phenomenon. They are encouraged to identify specific evidence to support their thinking. They can do this through presentations of illustrations or photos and in writing or oral presentations. Materials include hands-on activities such as in Unit 1: Matter, Lesson 2. The student's activity includes exploring many properties of matter. The students make predictions, and the students can collect data and answer questions.

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Indicator 2.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- The materials provide an opportunity to analyze data and define/solve problems. The instructional resources allow students to develop, assess, and change their ideas. The following is an excerpt from Concept 4: Light Behaviors, Lesson 1: How Does Light Travel, "Once students learn more about the types of mediums and objects that change the direction of light, they can engage in a similar process to consider cause-and-effect relationships," showing evidence of opportunities for students to develop, evaluate, and revise their thinking. Furthermore, the grade-level curriculum is taught to students through phenomena. The Scope and Sequence outlines the lessons that cover phenomena throughout the year.
- The materials provide multiple opportunities for students to explore phenomena in each unit. For example, in Unit 3, Lesson 1, students explore real-world phenomena with models and the day and night cycle. The materials provide teachers with a lesson where students create evidence to support a claim through the scientific process. For example, in Unit 3, Lesson 7, students give evidence regarding Earth's rotation. Further examples are found in Concept 3: Electric Circuits, Lesson 6, where students engage in the lesson with electrical transformations

using an electrical device such as a vacuum cleaner. Students model the transformations in flow charts on index cards.

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

- The materials intentionally leverage students' prior knowledge by accommodating different entry points to the learning through hands-on activities, text, images, and videos. For example, in Concept 3.4, Lesson 5, they make the connection of how a lasagna is like a sedimentary rock. This connection is done through reading an article together. The materials provide opportunities for students to make connections, such as STEM career lessons within the unit. For example, in Concept 1.3, Lesson 8, students explore how doctors use mixtures and solutions. A self-checking activity then follows this.
- Materials provide opportunities to experience real word problems with Educator Notes, and the Real-World Phenomenon section of each Engage section of the lesson is outlined for teachers. In the Making Connections phase of the lecture, students are asked to share any prior knowledge about the phenomenon and engineering problem. Furthermore, in Concept 3, Changing Landforms, Lesson 6, students explore dunes to continue the concept of changing the Earth's surface. Students create a model of how a dune forms. The teacher facilitates the discussion by asking guiding questions about the demonstration.

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

- The objectives are outlined in each unit to describe real-life phenomena. A description of the phenomenon in real life is included in the unit planner, along with the learning objectives and key terminology for each subject in the unit. Evidence of the learning objectives behind the occurrence in the actual world is found in Concept 3: Changing Landforms, Lesson 1: How Does Land Change? Instructions on how to concentrate on scientific topics and objectives are provided to teachers.
- Each grade 5 lesson provides teachers with a slide deck for class presentation. The deck includes but is not limited to questions, materials, activities, and lesson vocabulary. Materials clearly outline goals and concepts for the teacher, as in Unit 1, Concept 1: Describing Matter, and the Explore lesson gives teachers an outline of the lesson objectives and detailed directions for setting the purpose for the activity. For example, the materials specify, "Give the students 10 seconds to look at the image. Then give them 30 sec. to 1 min to write down what they saw."

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Indicator 3.1

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- Materials provide a Unit Planner at the beginning of each unit, there is a Unit Summary that shows how each concept within the unit connects to other concepts within the unit. At the beginning of each new unit, there is a structure and pacing guide that shows how concepts build complexity throughout the unit. The program guide states, “Each concept contains a series of 5E lessons broken into learning activities that follow a logical progression and are designed to build student understanding of the scientific concepts.”
- Materials provide alignment for students to build understanding and connect their knowledge within and across units. For example, in Unit 1, Concept 1, Lesson 6, students explore and develop an understanding of conductors and insulators in the discussion of matter through the lens of physical properties of matter, covered in an earlier lesson. Later, in Unit 2, Concept 3, Lesson 2, students connect their knowledge of conductors to electrical circuits.
- Materials purposely connect to prior learning across grade levels. In Concept 3: Changing Landforms-Lesson 1: How Does Land Change? Students learn how landforms change. The materials ask students to access prior knowledge and previous experience to communicate initial ideas about the changes to Earth’s surface. This connects to grade 3 and grade 4 knowledge of rapid and slow changes to Earth’s surface.

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- Learning and skill development are facilitated by vertically aligning materials. As students progress from grade 3 to grade 4, the concept of matter is scaffolded through grade 5 based on their prior knowledge. The complexity of the 5E learning model rises as content across grade levels and within a unit is established. In Unit 1, Concept 3, students begin the lesson by claiming similarities and differences between mixtures and solutions and then complete the lesson with the knowledge of how to explain the properties of substances when they are mixed.

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

- To scaffold students' learning, teachers are given proper resources such as sample statements to activate students' prior knowledge, a guide to quality questioning as students move into a hands-on activity, and more rigorous questioning as students move into the elaboration section of Unit 1, Concept 2. Furthermore, sequenced learning is noted in Unit 1, Concept 3, as the teacher asks, "Why is the bowl of fruit an example of a mixture?" The teacher then scaffolds learning that builds conceptual learning, eventually reaching a more rigorous question of, "Do the properties of the fruit change or stay the same when you create the mixture?" and "How do mixtures and solutions compare?"
- In grade 5, in Unit 2, Concept 2, Lesson 1, *How Do Forces Affect Objects*, before exploring a real-world phenomenon example of bowling, students are encouraged to access their prior knowledge and state what they already know regarding force and motion. In addition, in Concept 1: *Earth's Rotation*-Lesson 2 students explore shadows and make observations about the changing position of the sun. The students make predictions about the shadow length and angle during the day. This hands-on activity is followed by the teacher providing an assessment and phenomenon check-in. Teachers can find several different types of lessons in each unit, including engagement, exploring, and extension activities with a final assessment to determine student understanding. For example, in Unit 4, Concept 2, Lesson 8, *Ecosystem Changes, Evaluate What You Learned* is sequenced for students to demonstrate understanding in differentiated ways, such as oral presentations, writing, or drawings.

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

- Materials provide teachers with lessons that are clear, accurate, and grade specific. For example., In Unit 2, Lesson 2 *Create a Circuit*, students are creating a circuit after teacher instruction. This supports TEKS 5.8A. Furthermore, in *The Cycle of Day and Night*, Lesson 2, the Explain lesson guides students to utilize claims, evidence, and reasoning. The teacher asks guiding questions to connect previous learning in the unit to assist students in making their claims and evidence support.
- Materials include comprehensive teacher directions for the fundamental concepts, recurring themes concepts, and science and engineering practices, in the materials to the students. For instance, the *Supporting Scientific Themes* teacher materials, which are directly accessible in the lesson guide, provide the teacher with specific instructions such as "Once students learn more about how mixtures and solutions compare, they can engage in a similar process to consider cause-and-effect relationships."

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

- Materials provide In each unit student objectives that are clearly stated along with the standards/TEKS that students must master in the lesson. For example, in Unit 4 Concept 4 Lesson 5, *How Can Behavior Impact Survival?* Students will make a claim about behavioral traits that increase chances of survival and explain how behavioral traits increase chances of survival using evidence and reasoning. This correlates to TEKS 5.13B and 5.5 B. Furthermore, each lesson's learning objectives are presented at the start and contain precise expectations, such as the one found in Unit 1, Concept 1, Lesson 1, "Use evidence and reasoning to describe how to compare and contrast matter based on mass and volume measurements. use evidence and reasoning to explain how to compare and contrast matter based on mass and volume measurements."
- Materials included in unit resources for each unit, give "I can" statements for student's learning objectives. For example, in Unit 2, Concept 3, *Electric Circuits*, the student explains that electrical energy can be transformed into heat, light, sound, and motion energy. In addition, the materials provide an assessment at the end of each unit. Materials provide student objectives. For example, at the conclusion of Unit 2, concept 1, the student will describe the different types of forces that affect objects, explain how forces affect objects, and explain how energy is transferred to objects through applied forces.

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Indicator 3.2

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- Materials support teachers in understanding the scope and sequencing that covers the key ideas, recurring themes and concepts, and science and engineering practices for each unit and grade. The Unit Planner feature, which provides an overview and detailed teacher instructions for each lesson, is accessible through the Unit Resources tab. The learning objectives contain the verbs in the TEKS and key vocabulary terms. In addition, within the Unit Resources, Unit Structure, and Pacing, each page identifies the unit, the 5E structure, lesson title, type, and time. Teachers have support for understanding the alignment and can use the planner to sequence lessons and plan materials.
- In support for teachers to understand the vertical alignment, the materials provide teachers with the different scientific concepts across K–5 grade levels. Using this document, teachers can see how each science concept will be expanded in the upcoming grade or how it was addressed in previous grades. In addition, materials provide teachers with an additional support document for example, in the horizontal and alignment document the teacher can access science and engineering practices and recurring themes and concepts by clicking on the tab labeled "SEP &

RTC." The teacher can view their grade level horizontally and can view recurring themes and concept alignments vertically.

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

- Materials provide teachers with a background knowledge document that can be found within the unit resources. For example, in Unit 2, teachers are provided with information regarding what students should be familiar with regarding force. In addition, in Unit 2, Concept 2, Lesson 1, *How Do Forces Affect Objects?* the teacher is given a suggestion of how to support the science themes throughout the unit. The following is given as background information to be used: As students work through the concept, encourage them to notice the following. Furthermore, in the unit resources, for *Changing Landforms*, teacher background information is a detailed description of landforms and the processes that form these landforms. For example, wide U-shaped valleys are formed by glaciers as they move slowly down a mountain.
- Materials also help teachers identify barriers that may hinder students' conceptual development. These barriers can include preconceived notions, language barriers, or prior knowledge gaps. By being aware of these potential obstacles, teachers can modify their instructional strategies and provide additional support to help students overcome these challenges. For example, In Unit 4, Concept 4, Lesson 6, *Farm Animals Behavior*: *Inherited and Learned*, student misconceptions are listed to guide the teacher in recognizing and resolving misconceptions. For example in *Misconceptions,* students may think that all instinctual behaviors of animals can be replaced by learned behaviors. Materials provide teacher instructions to "discuss with students that some animals have very strong instinctual behaviors. Humans may be able to teach these animals new behaviors, but their instinctual behaviors could easily take over. Therefore, it is not safe to keep wild animals as pets."

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

- Materials in the *Program Guide for Science Techbook* describe the program's purposeful, research-based instructional design, created especially for the Texas Essential Knowledge and Skills and English Language Proficiency Standards. For example, the *Program Guide* for Unit 2 states that "hands-on learning is a foundational component of *Science Techbook* and authentic Science learning experiences." In Unit 2, materials provide teachers with six unique hands-on learning experiences across all four concepts.
- Teachers can view materials that explain the intent and purpose of the design. For example, in Lesson 2, *Earth's Rotation*, a slide deck sets the purpose in the educator notes with the students making connections by referring to shadow puppets. Students make observations and discuss with a partner what they observe before the teacher adds context to the activity. In the reading activity of Explore, students do a picture walk-through of images and identify text features to set the purpose. The materials' strategies are designed to access prior knowledge about the content.

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Indicator 4.1

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

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

Meets| Score 4/4

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

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

Evidence includes but is not limited to:

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

- Materials provide opportunities for students to investigate how structures are constructed through an engineer's eyes in Concept 1, Lesson 8. The students watch a video about constructing a structure and its materials, paying attention to their mass, size, shape, and other properties. As a result of thinking time and a verbal, small group problem-solving activity, students create written results and present their scientific explanations to their peers. In addition, in Unit 2, Concept 1, Lesson 2, *Forces All Around*, students complete an activity and then can turn and talk to a partner. The teacher takes the lesson further by having students use their knowledge of forces to then discuss building a go-kart. Materials include real-world experiences that students can relate to. In Unit 2, Concept 2, Lesson 6, *Mechanical Energy on The Playground*, students explore a hands-on investigation on the playground. In this investigation, students look at how mechanical energy can be changed along with speed.

Materials include various balls, flying discs, and toy hoops. Students write while collecting observations and data.

- Materials provide students the time to construct and present their scientific explanations in the format that works best for the classroom (oral presentations, writing, or drawing). For example, in Unit 4, Concept 2, Lesson 8, *How Do Animals Survive in Environments?, s*tudents are encouraged to discuss their claims with each other. They are then asked to write about their reasoning with supporting evidence. In addition, in Unit 4, Concept 2, Lesson 9, *Careers and Short-Term Changes in Environment* students read 3 texts. They can do this by using the immersive reader to play the audio.

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 ways for students to ask and gather grade-level appropriate evidence from the scientific text. For example, in Lesson 9, students read a text about designing a structure that survives wind and rain based on its physical properties. Using graphic organizers, students document their learning throughout the lesson. Furthermore, students read scientific texts in Concept 2, Lesson 6, to describe and classify the differences between solids, liquids, and gasses. Throughout the instructional process, students will be supported with images and tables, as well as literacy strategies.
- Within the learning materials, students receive assistance in cultivating their comprehension of scientific concepts through the utilization of visual modes of communication and written resources. For example, in Unit 4, Concept 1, Lesson 7, *Getting to Know: Plant Life Cycles,* they will be required to compare the life cycles of flowering plants, conifers, and spore-producing plants. They will use summary frames and graphic organizers to help them summarize the main ideas of the text.
- In addition, materials provide grade-appropriate texts such as, in Unit 2, Concept 1, Lesson 5, *Force and Its Effects on Objects*, students are encouraged to draw or illustrate what force looks like. During reading, students will turn and talk to peers about ideas. After reading, students will share what they learned about forces that surprised them.

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

- Materials suggest ways for students to engage in various written and graphic modes of communication in Concept 2, Lesson 1, *Earth's Resources*, the teacher sets the purpose by collecting items from around the classroom that will be easy for students to identify and describe. The activity goes for several rounds while the teacher explains that the lesson will be about natural resources. The teacher organizes a question board to post inquiring questions about specific materials as they progress through the lesson. In the Explore segment of Concept 2, Lesson 1 in *Earth's Resources*, the teacher continues to gather materials around the room to discuss the properties of the materials. The students conduct an interactive lesson that allows them to match the items to the correct category. When the interactive lesson is complete, the teacher continues the discussion with sentence frames such as, "Plants are a_____'', "Fossil fuels are a___"

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- Materials include the opportunity to develop and display an understanding of scientific concepts, such as in Concept 1, Lesson 2, students investigate the properties of objects through a hands-on activity. Temperature, volume, magnetism, mass, and ability to sink or float are recorded in a table. In a later stage of the activity, students create a line graph comparing the volume of each object to the volume of other objects. Furthermore, students demonstrate their cognitive processes by crafting their models, documenting their understanding through graphic organizers, and articulating their thoughts in written responses about each concept.
- In addition, in Unit 4, Concept 3, *Food Chains*, students are given string and put in groups to demonstrate the flow of energy in a food chain. They also use a click-and-drag interactive while reading the text on food chains. They use a graphic organizer to record their food chains. Each of these different styles of communication is used to demonstrate understanding.

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

- Materials allow students to investigate how different forces act on objects. In Unit 2, Concept 1, Lesson 2, *Forces All Around*, students make predictions while also being reminded that scientists regularly make and revise predictions. Students work in small groups to decide which materials to use for push and pull. Students design their investigation, test, and record data.
- In addition, in Unit 4, Concept 1, *Life Cycles*, Lesson 3 *Life Cycles of Plants and Animals,* students act like scientists as they describe the life cycles of plants and animals, sequence the life cycle stages of various organisms, and explore and compare the life cycles in organisms such as dragonflies, alligators, or beans.
- Materials provide students with real-world experiences in the incorporated materials. This is seen in Unit 4, Concept 2, Lesson 9 when the teacher has the students share their experiences of visiting national parks, arboretums, and nature reserves. Other examples can be seen in Concept 2, Lesson 3, where students can investigate what happens when heat is added to or removed from the water. When making predictions about the next state of matter based on the incorporation and removal of heat, students often struggle with the concept of evaporation and condensation.

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Indicator 5.1

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Materials prompt students to use evidence to support claims. For example, in Unit 1, Concept 1, Lesson 8, students use evidence and reasoning to explain how to compare and contrast matter based on mass, volume, magnetism, relative density, solubility, thermal conductivity, and electrical conductivity. Students construct scientific explanations through oral presentations, writing, or drawing. Similarly, in Unit 1, Concept 3, Lesson 7, students support a claim about similarities and differences between mixtures and solutions with evidence and reasoning. They explain the limited materials that dissolve in water to form a solution and write scientific explanations of the similarities and differences between mixtures and solutions. Students can choose to present their findings orally, in writing, or through drawing. In addition, in Unit 2, Concept 2, Lesson 7, *Super Slippery Slide*, students watch a video about a slippery slide and engage in a turn-and-talk activity with a partner, discussing the different parts of the slide and the forces applied. They then complete their own assessment independently.
- Materials provide students with opportunities to make claims. For example, in Unit 3, Concept 4, Lesson 8, students claim the formation of sedimentary rocks and fossil fuels. Students reflect on their previous learning in small groups, modify their thinking, and perform an investigation to

model the creation of rock layers. Before the investigation, students discuss their predictions in small groups to make a claim based on their background knowledge. In addition, in Unit 4, Concept 4, Lesson 5, *Instincts and Learned Behavior*, students work together in groups to develop a claim that explains a real-world phenomenon and answers the driving question on the impact of behavior on survival. They share evidence supporting their claim and engage in turn-and-talk discussions within their groups. They also write reasons explaining how the evidence supports their claim.

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

- Materials provide opportunities for vocabulary development, such as in Unit 1, Concept 2, the word gas is used throughout the learning sequence. In Lesson 1, students assess how gasses expand to claim the composition of matter. A student describes the structure of matter in Lesson 2, and how its arrangement results in the state of matter (solids, liquids, and gasses). Lesson 3 demonstrates a link between these particles and their structures using video as evidence. Lessons 4 and 5 provide students with a hands-on activity and a literacy component that further investigates gasses. Each concept is accompanied by a glossary of vocabulary words. In this interactive glossary, students can hear the pronunciation, learn the definition, understand the context, and watch animations based on these words. Throughout the 5E model, these vocabulary words are used during the learning sequence, providing students with opportunities to develop their scientific vocabulary. In addition, during Unit 2, Concept 1, Lesson 1, *How Do Different Forces Affect Objects?* students build knowledge on the term force. Materials encourage teachers to create a student question board so that students can remain engaged during the investigation. As the lesson progresses, students continue to use the force and the different ways that it can be applied to an object. After watching a video in Unit 2, Concept 1, Lesson 4, *The Rhythm of Push and Pull,* students use their knowledge of the term, unequal force, to check their understanding and continue to use it within the content of the lessons in this concept.
- Materials suggest ways for students to make claims, such as in the STEM Literacy in Concept 1, Lesson 8, the teacher stops occasionally when reading about Earth's rotation and reflects on what they have read. For example, the lesson allows students to turn to a partner and rephrase the information for the section in their own words. In addition, in Concept 1, Lesson 7, Unit 3, students construct a claim using evidence from real-world examples. The teacher directs students to share evidence that helps support their answers as students may use a tree diagram or graphic organizer. Students may use resources and supporting themes to justify their claims. Furthermore, in Unit 4 Concept 2, *Ecosystem Changes*, there is a glossary of vocabulary words. Throughout the lesson, there are vocabulary check-ins such as for the word harmful. Once the teacher checks their understanding of the critical vocabulary term, they will prompt them to continue using it as they engage with the content of the lesson.

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

- Materials integrate argumentation and discourse for student development. For example, in Unit 1, Concept 1, Lesson 1, students claim to compare matters. The teacher facilitates turn-and-talk opportunities where students share their responses about what they noticed and what they wonder about the real-world phenomenon of the comparison of matter. These types of

questions require peer discussion and argumentation due to the differing opinions, claims, and evidence presented. Similarly, as part of Unit 1, Concept 3, Lesson 2, students make predictions and work in small groups to observe how different substances combine and separate in mixtures. The teacher reminds students that scientists frequently make predictions and revise them based on evidence obtained from investigations. Students discuss their predictions in groups and share them with the class. In addition to recording written responses, students are encouraged to participate in academic discussions throughout the investigation. Teachers utilize pre-planned questions to facilitate turn-and-talk conversations. Students will review their predictions with their partners following the investigation and discussion.

- Materials allow students to explore light in Unit 2, Concept 4, Lesson 2, *Reflection, Refraction, and Absorption*. Students predict light and what happens when it comes in contact with water, a mirror, or a tennis ball. Students then share ideas with the class. In addition, in Unit 3, Concept 1, Lesson 3, *The Cycle of Day and Night* is explored. Students collect evidence on the times day and night are experienced around the world. For example, students are asked how they would explain how it can be dark in one part of the world, but light in another. Students share their responses and gather more evidence in the interactive lesson.
- Materials within Unit 4 expound on the specific role that argumentation plays in the realm of engineering, enabling students to discern the most optimal solution for a given problem. Materials demonstrate how argumentation is utilized in the early phases of the design process, empowering engineers to make well-informed decisions regarding the initial blueprint. As the design process progresses, engineers actively engage in testing, data collection, and adjustments to their designs. They bolster their arguments concerning the pros and cons of a particular design by presenting compelling evidence. Although scientific and engineering argumentation processes exhibit similarities, engineers utilize distinct criteria, such as cost-benefit analysis, risk assessment, and aesthetic appeal, to substantiate why one design surpasses another.

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

- Grade 5 materials allow students to construct and present arguments to justify explanations, such as in Unit 1, Concept 1, Lesson 8, *How can we compare matter?* As students gather evidence throughout the concept lessons, they reflect upon the driving question. Students must provide evidence to support hypotheses and claims at various stages throughout the materials. Students may present their scientific explanations in the format that is most comfortable for them, such as an oral presentation, written work, or drawing. In addition, Unit 2, Concept 3, Lesson 7, *Why Are Electric Circuits Useful?* students claim as to why electric circuits are useful. As the lesson progresses, students then work with a partner to gather evidence. Students then write their reasons that the evidence supports the claim.
- Materials in Unit 3, Concept 1, Lesson 3, *The Cycle of Day and Night* provide opportunities for students to collect evidence on the times of day and night as experienced worldwide. For example, students are asked how they would explain how it can be dark in one part of the world, but light in another. Students share their responses and gather more evidence in the interactive lesson. Furthermore, students support their claims in Unit 3, Concept 1, Lesson 7 using the science theme of the Earth's rotation. For example, students share what they have explored about the Earth's rotation and use evidence and reasoning to claim what happens when Earth rotates. Students work in groups to develop their claims and answer the question.

- In addition, in Unit 4, Concept 3, Lesson 7, *Structure and Function*, students will collaborate with a partner to verbally exchange evidence that assists them in addressing the main question: How do organisms rely on structures for survival? The teacher will subsequently encourage students to identify specific supporting evidence from the lessons to reinforce their thoughts. To structure their evidence, students will utilize a chart focusing on structure and function, and follow a writing prompt to articulate the reasoning behind their claims. Finally, students can choose the most suitable format for presenting their scientific explanations, such as oral presentations, written work, or illustrations. They can also choose their preference for communicating their scientific explanations.

Discovery Education Science Techbook for Texas
Grade 5

Indicator 5.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Teacher guidance materials provide opportunities for guidance such as, through the use of a video lesson in Unit 1, Concept 3, Lesson 3, students will describe the characteristics of mixtures and substances and analyze the properties of substances before and after mixing them together. The teacher is provided with questions and possible student responses to assist in setting the purpose of the lesson. For example, "Which do you predict will dissolve the salt for the soup more quickly, hot or cold water? Sample response: hot water." A set of additional questions is provided to the teacher for use during and after the video to facilitate a turn-and-talk discussion among students. For example, "How does a candy mixture compare to water? Sample response: The candy mixtures have substances that can be easily separated. The water is a compound. The elements in a compound combine to make something new and can no longer be easily separated."
- Materials provide suggestions during a hands-on activity in Unit 2, Concept 4, Lesson 2, *Reflection*, *Refraction, and Absorption*, for the teachers to ask questions to students, such as, "What evidence might you observe to indicate these behaviors of light?". Materials also provide the teacher with a sample response, such as, "I can observe the direction light travels when it comes in contact with each object."

- Materials provide opportunities for a teacher to use questioning to deepen student thinking, such as in Unit 3, Lesson 7, *Earth's Rotation,* where students use evidence to make a claim. The teacher begins the lesson with an open-ended question, "What have you learned about Earth's rotation?" Materials state that student responses will vary and provide two possible answers. For example, "I learned that Earth rotates one complete time every 24 hours and that is what makes us have day and night."
- Materials in Unit 4, Lesson 6, *Concept Instincts and Learned Behavior,* provide the teacher with questions to assess students' understanding before, during, and after reading. The lesson also offers guidance on addressing potential misconceptions that students may encounter. The teacher is reminded that it is important to engage in a discussion with students regarding the belief that all instinctual behaviors in animals can be replaced by learned behaviors. The teacher will emphasize that certain animals possess strong instinctual behaviors that can overpower learned behaviors, even if humans attempt to teach them new behaviors. Consequently, it is unsafe to keep wild animals as pets.

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

- Materials include teacher guidance on scaffolding and supporting students' development. For example, in Unit 1, Concept 1, Lesson 2, students compare and contrast types of matter based on mass, volume, magnetism, density, and solubility. Students start by describing the conductor, mass, volume, and solubility, activating their prior knowledge. In pairs, students describe how they have experienced such properties. Students practice vocabulary topics at several stations during the hands-on activity. Students share their ideas in small groups, ask questions, and illustrate their findings with drawings. Once students have built a conceptual understanding of conductor, mass, volume, and solubility, teachers will check their understanding of the key vocabulary terms.
- In Unit 2, Concept 3, Lesson 6, *Electric Transformations*, materials guide the teacher to organize students in pairs and distribute index cards. At this time, students label each blank card as a form of energy. The forms include chemical energy, electrical energy, thermal (heat) energy, light energy, motion energy, and sound energy. Students then look at the real-world object of a fan and create a flowchart with index cards to show how the energy is transferred through the fan.
- Materials provide the teacher with opportunities to help support students' development of vocabulary. For example, in Engage, Lesson 1, Concept 1, *What Happens When Earth Rotates?* students make a claim about what happens when the Earth rotates. The teacher builds content knowledge with real-world connections. Students share what they know about daytime occurring in one place and night in another location. After students have built conceptual knowledge of the term rotate, they will continue to use the term as they interact with the lesson.
- Materials provide suggestions at the start of each lesson for the teacher to initiate a discussion to assess the students' prior knowledge. This discussion explores the scientific terms associated with the subject under study. To assist students in understanding the vocabulary better, the teacher incorporates a segment called Vocabulary Check-In. For instance, in Unit 4, Concept 2, Lesson 1, *Ecosystem Changes*, after the students have acquired a conceptual grasp of the term "ecosystem," the teacher assesses their understanding of the essential vocabulary and prompts them to utilize it throughout the lesson while engaging with the material.

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

- Teacher guidance materials suggest ways to prepare students for discourse and using evidence, such as in Unit 1, Concept 2, Lesson 4, which describes how to compare types of matter using mass and volume measurements. Students present their findings in class after a teacher facilitates successful conversations among them. Turn-and-Talk questions include, "Why can't you see the sugar after adding it to the lemonade?" and " What makes something a mixture?" A sample student response is provided to help teachers prepare. In addition, this lesson utilizes research-based discourse strategies in which students synthesize and deepen their understanding of grade-level content. Teachers are given educator notes on how to facilitate these strategies. Materials instruct students to describe each mixture in six words. Students are challenged to write a six-word story about the mixture once they understand it. Students are reminded to use key vocabulary words when writing stories. The sharing process allows students to explain their thinking processes.
- In Unit 2, Concept 1, Lesson 7, *How Do Different Forces Affect Objects?* the slide deck materials support making a claim and providing evidence. While using a provided sentence stem, the students work in groups to develop a claim. Students then work in pairs to gather evidence from their notes, interactive activities, videos, and the reading passage. This is then recorded in a graphic organizer and shared with the class.
- Materials guide teachers to prepare students for discourse and evidence claiming. For example, in Unit 3, Concept 2, Lesson 6, *Sun, Oceans, and Weather,* students describe how the sun affects the ocean and weather. Students work in groups to develop a claim that best explains the real-world phenomenon and answers the driving question, "How do the sun and oceans affect weather?" The teacher guides students to find the evidence to support their claims.
- Materials in Unit 4, Concept 4, Lesson 1, *Instincts and Learned Behavior*, provide teachers with a curated set of questions and sentence starters to aid students in expressing their thoughts effectively, both in writing and through verbal communication. These thought-provoking questions prompt students to support their assertions with evidence during discussions. Within this context, one of the questions involves collaborative work with a partner, aiming to present evidence that addresses the central inquiry: "How do the traits of organisms compare?" The teacher actively encourages students to pinpoint specific evidence derived from the lessons that reinforce their perspectives and guides them in utilizing a cause-and-effect table to systematically organize the evidence they have gathered.

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

- Teacher guidance materials provide suggestions to facilitate student thinking for example, as part of the educators' notes, teachers receive guidance on how to facilitate student discussions. As a result, students can share and analyze data to come up with solutions. Through a lesson on stem careers, students will describe the measurement of and testing of observable physical properties of matter in Unit 1, Concept 1, Lesson 9. When students are given a question, the teacher encourages them to come up with a solution, such as: "Why are physical properties such as strength and durability important to architects and builders?" Instruct students to identify innovative solutions to problems engineers encounter in measuring matter and to share those ideas with a partner or group.

- In Unit 2, Concept 4, Lesson 2, *Reflection, Refraction, and Absorption,* materials provide teachers with questions to ask students while circulating the room during an investigation. Materials provide probing questions, "What did you notice about how light behaves when you shined it on each object?" and "Did the results of the investigation support your hypothesis or provide evidence against your hypothesis? Describe how you know."
- Materials provide suggestions on how to facilitate student thinking, such as in Concept 1, Lesson 1, *What Happens When Earth Rotates?* where students make a claim about what happens when Earth rotates. The teacher elicits prior knowledge. Students create a model to determine the differences in how we see the sun during the day and not at night. Students create their models and answer questions in a graphic organizer. For example, students record their times for the approximate location of the sun. The teacher continues to scaffold and asks questions while observing the students' responses.
- In Unit 4, Concept 3, *Structure and Function*, students collaborate with a partner on how to exchange evidence that assists them in addressing the main question: “How do organisms rely on structures for survival?” The teacher prompts students to identify specific pieces of evidence from the lessons that substantiate their thoughts and then instructs them to employ a structure-and-function chart for organizing their evidence. The teacher is provided with the following guidance to support students: "Share the evidence you have gathered with your partner to support your argument. Utilize the graphic organizer to assist you in arranging your evidence. Sample response: “The information we acquired from the reading lesson revealed that animals possess distinct body parts that contribute to their survival. The evidence from the hands-on activity enabled us to compare the varied structures and functions of animals. Additionally, the video presented evidence indicating that teeth serve as structures for aiding animals in eating, while lungs serve as structures for facilitating respiration in animals.”

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Grade 5

Indicator 6.1

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials include a variety of assessment tools, such as in Unit 1, Concept 3, Lesson 3, where students describe the characteristics of a mixture and a substance and examine the properties of substances before and after mixing them together. Students are informally assessed several times by their teacher using a graphic organizer and by prompting them to discuss using planned questions such as, "What can a mixture be made of?" Students will describe and compare matter and its properties as part of Unit 1, Concept 1, Lesson 10. Individual or group responses will be based on the students' understanding of matter. Various methods may be used to demonstrate students' understanding of the objective, such as recording a presentation or giving a performance. Student materials include an Evaluate page that must be completed before taking the Concept Summative.
- Materials provide students with a complete assessment to show their knowledge of mechanical energy. After completing a hands-on activity in Unit 2, Concept 2, Lesson 4, *Mechanical Energy and Speed*, students gather into small groups and then share with the rest of the class. At the end of each concept, materials provide a summative and formative assessment. For example, in Unit 2, Concept 1, Lesson 9, *Exploring Forces*, students are able to choose from different methods of how they will share what they learned about the different types of forces.

- Materials in Unit 3, Lesson 8, *Earth, Weather, and Land,* provide the students with a description of how Earth rotates on its axis once approximately every 24 hours and explain how Earth's rotation causes the day-and-night cycle. After completing the Evaluate page in their student materials, students then complete the Concept Summative assessment. In Unit 3, *Earth, Weather, and Land*, Lesson 8, students explain how the sun and ocean affect the water cycle and the weather, and how the water cycle affects weather. Students can decide how they would like to answer these three questions. They can record, perform, or find the answers.
- Materials in Unit 4, Concept 2, Lesson 4, *Ecosystem Changes*, involve students engaging in a turn-and-talk activity facilitated by the teacher. The teacher poses two questions: "What advantages do natural resources such as rock and wood offer to humans?" and "How do ecosystems transform when humans excessively depend on natural resources over time?" Furthermore, students will complete graphic organizers based on their reading of diverse articles. Materials in Unit 4 encompass a diverse array of assessments, including diagnostic, formative, and summative evaluations, which provide both formal and informal chances to gauge student learning in various formats.

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

- Materials provide suggestions for assessing all students. For example, in the Standards Alignment PDF document that can be found under the Unit Resources tab. This PDF document identifies which TEKS are included in the unit. The materials indicate which student expectations are assessed. For example, students will demonstrate how to make different types of mixtures in Unit 1, Concept 3, Lesson 2. The lessons assess science and engineering practices either formally or informally. For example, in Lesson 2, probing questions and discussions are used to assess 5.1A (Ask questions and define problems based on observations or information from text, phenomena, models, or investigations). The Concept Summative and the lessons assess standard 5.6B.
- In Unit 2, Concept 4, Lesson 8, *How Does Light Travel?* students are assessed by making a claim and providing evidence regarding how light travels. Sample responses are provided for the teacher as an answer key. Each lesson in Unit 2, Concept 3, has the TEKS listed that will be taught. At the end of each lesson, students are then asked a *What Did You Figure Out?* that supports what they learned in the lesson. For example, in Lesson 2, *Create a Circuit*, 5.8 A and 5.1 A are taught. At the end of the lesson, students are asked, "Which material was able to light the bulb by replacing part of the wire in the circuit? Circle the correct answer." The teacher is then provided with the correct answer choice that students should select.
- Materials identify which TEKS are assessed in each unit objective and introduction. At the end of each lesson, students are provided with multiple formats to be assessed over the taught content. For example, in Concept 1, *Earth's Rotation*, Lesson 2, students learn about Earth's Shadows. The TEKS focus is 5.9A, 5.1F. The phenomena check-in at the end of the lesson assesses student knowledge of 5.9A and 5.1F. Materials provide a Table of Contents that outlines the TEKS for each unit. Unit 3 has five concepts, and each summative tests student knowledge of the content taught in the lesson. For example, Environmental Impact expands the standards with questions that align with standard 5.11.
- Materials in each lesson provide a Standards Alignment that lists each TEKS for the grade level and in what concept the TEKS will be taught. For example, in Unit 4, Concept 2, Lesson 4, the standards are listed as 5.12.B and 5.1.F, and students gather evidence to describe how humans

cause ecosystems to change. In the Unit Resources tab within the unit, the Standards Alignment PDF document indicates which TEKS are included.

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

- Materials provide opportunities for assessment practices. For example, science content knowledge and engineering practices are assessed in the materials, along with recurring themes and concepts. Students can demonstrate the integration of science and engineering concepts and practices through hands-on activities. Students' progress is monitored through performance assessment artifacts. During Phenomenon Check-Ins, students reflect on their sensemaking after a hands-on activity. Teachers can analyze data generated by students to monitor their progress. Assessment materials integrate science concepts and science and engineering practices. Unit 1, Concept 2, Lesson 8 explains how the properties of solutions are used to create mixtures that are used to manufacture products, understands that solutions are mixtures of two or more liquids, or solids and liquids, and comprehends that solutions can be separated through heat (evaporation), which supports student expectations 4.1B and 4.6B. To gather evidence of scientists working in this field, students will analyze a complex text and video. The students are then assessed through probing questions, Turn-and-Talks, and interactive digital assessments.
- Materials provide opportunities for students to explore light behaviors in Unit 2, Concept 2. There are multiple opportunities for students to practice and then be assessed on their learning. For example, in Lesson 3, *Light Waves*, students watch a brief video about light and how it interacts with different objects. Students then complete a *What Did You Figure Out?* independently in which they fill in the blank in various statements with words from a word bank. In addition, in Concept 1, Lesson 2, *Earth's Rotation,* students work on a hands-on activity to discover the position of shadows throughout the day. The teacher facilitates questions throughout the investigation. Students engage in an assessment to demonstrate their understanding of how the apparent position of the sun due to Earth’s rotation creates shadows of different lengths and angles based on the investigation. Materials lead students through lessons that provide guidance and formative assessments after investigations. For example, after the students investigate how water changes the Earth, they complete an assessment demonstrating their understanding of the scientific process.
- Materials are thoughtfully designed, paying careful attention to spacing and layout, which enhances the readability and comprehension of the lessons. Materials are user-friendly, providing an informative learning experience that meets the needs of students. The effective use of white space, color, and neatness creates a visually appealing presentation. Importantly, these design elements are purposefully incorporated to minimize teacher distractions when locating specific lessons. The effective integration of science and engineering concepts and practices is demonstrated through engaging in hands-on activities, allowing students to showcase their understanding. Teachers have the opportunity to assess and monitor student progress by analyzing the data collected from these activities. The curriculum materials include assessments that evaluate students' science content knowledge and their application of engineering practices. Recurring themes and concepts are skillfully woven throughout the curriculum, providing a cohesive and comprehensive learning experience.

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

- Materials provide assessments that require students to apply their knowledge. For example, in Unit 1, Concept 2, Lesson 8, students describe how matter consists of particles too small to be seen without a powerful microscope. They are reminded of the matter-building blocks activity in the engaged lesson. In small groups, students reflect on how their understanding of matter has changed. Small group discussions are initiated by probing questions. A student develops a claim by describing a real-world phenomenon and answering the driving question, "What is matter made of?" Students present their evidence orally, in writing, or drawing.
- Materials provide suggestions for students to assess through various contexts. For example, in Unit 2, Concept 2, students showcase their learning with a graphic organizer while reading the text. In Lesson 5, *Force and Mass*, the students look at a data table and draw conclusions after performing a hands-on activity. In Unit 2, Concept 3, Lesson 3, *Electric Transformations*, students review a diagram from a previous lesson before working through a hands-on activity and completing a flow chart.
- Materials in Concept 2, Lesson 3, *Sun, Oceans and Weather,* allow students to create a model demonstrating the water cycle and explain how the sun and the ocean interact in the water cycle. Students describe evidence found while conducting the investigation and the advantages and limitations of using models. In Lesson 2, Concept 3, *Changing Landforms*, students model and identify how water changes Earth's surface to form deltas and canyons, model the formation of deltas by the movement of water on Earth's surface, and model the formation of canyons by the movement of water on Earth's surface. Students use a turn-and-talk to discuss patterns observed in how slope affects stream depth and width with the prompt, "How do you explain the patterns you observed?"
- In Unit 4, Concept 4, Lesson 7, students are presented with three thought-provoking questions: "How do an animal's instinctual behavioral traits increase chances of survival?" "How can an animal's learned behavioral traits increase chances of survival?" and "What is an example of an animal's instinctual behavioral traits and an example of its learned behavioral traits?" Students have the flexibility to respond to these questions in various ways. They can record their answers, write them using words or sentences, or even create a visually informative poster depicting animals' learned behavioral traits that contribute to their survival. Additionally, students can express their responses through performance by speaking their answers aloud or even composing a song that illuminates how learned behavioral traits impact an animal's chances of survival. Furthermore, students can explore informational texts or search online for examples of animals utilizing learned behavioral traits to enhance their survival prospects.

Discovery Education Science Techbook for Texas Grade 5

Indicator 6.2

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials include some resources and guidance when evaluating student response. For example, during summative assessments. Materials include assessments that are graded digitally using a key. For example, in the grade 5 concept summative, question 2 asks, "Which figure below represents matter in the liquid state? " Answer Choice B.
- The Assessment Administration document provides detailed instructions on how to administer assessments, beginning with how to assign assessments to a class or group of students. Also included are guidelines for administering summative assessments, as well as how to evaluate constructed response questions in both lessons and summative assessments. Furthermore, it explains when to accept all responses for constructed response items that are intended to be used as a pre-assessment or as opinion-based questions early in the lesson. A copy of this document will be placed in Course Materials.
- Scoring Guidance for the "What Did You Learn?" Assessment provides teachers with information on how to record student scores for the "What Did You Learn? " lesson that serves as one option for a summative assessment in grades 3-5. An assessment scoring template is provided to teachers for each "What Did You Learn? " Assessment. It is through reflection questions that teachers are able to examine the data and reflect on how students performed holistically. As a

result, they are asked a series of questions that guide them through a process of identifying students needing additional support or accommodations in the next lesson, as well as students who may benefit from enrichment or extension activities.

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 provide guidance and direction with assessing areas of student need. As part of both formative and summative assessments, teachers are provided with a key, rubric, or suggested answer for use in evaluating students' responses. For example in Unit 1, Concept 1, Lesson 3, the teacher asks the question, "How can substances be combined and separated?" Student responses will vary. Sample response: "Objects in mixtures combine when you put them together. They separate when you pick objects out of the mixture, such as picking out all of the tomatoes from a salad."
- Materials provide guidance on the analysis of student data. Materials provide suggestions on how to analyze data such as in the Assessment Guide, under Concept Assessments, materials state that "These assessments require students to apply knowledge and skills to novel contexts, thus demonstrating transfer of knowledge."
- Teachers can view customized progress reports by skill and by student, as well as class and grade level. For example in Concept 1, Earth's Rotation, Lesson 5, *Shadows and Light*, students complete the assessment and teachers are able to view the reports based on class, concept, lesson and student.
- The instructional resources contain assessment tools that generate data, enabling teachers to conveniently analyze and interpret the results. In the Results section, a grid is provided along with a color-coded Legend, which assists in evaluating students' mastery levels for each response. For example, students can receive full or partial points depending on their answers.
- An assessment guidance document designed to support teachers with use, analysis, and data-driven instructional planning. The digital product contains these documents under Course Materials. Teachers can follow a step-by-step process as they receive results from lesson and concept assessments in each document. To help teachers gain a better understanding of student performance, teachers are provided with reflection questions throughout the process.
- The Lesson Data and Concept Data Reflection documents provide suggestions for analyzing data based on questions or by student, as well as grouping students according to their performance.
- Teachers are provided with suggestions on how to respond to the data and plan future core instruction for the whole class or for individual students. Teachers can use these suggestions to identify and utilize additional Discovery Education resources to supplement lessons for reteaching, remediation, and enrichment.
- The materials provide support for teachers for the analysis of assessment data. For example, data related to assessment can be viewed and exported from the assignment manager. The concept summative, Matter, for example, displays question numbers, standards, points, student scores, and whether the student was marked correct or incorrect.

Discovery Education Science Techbook for Texas
Grade 5

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

- The material tools provide teachers with information to utilize when designing instruction, intervention, and extension activities. Teachers can plan instruction, intervention, and extension based on scores and standards using the provided assessment tool. The lessons provide information about expected student responses, misconceptions, and extension activities that can be used to plan instruction, interventions, and extensions.
- Located in the Assignment Manager, the teacher can see how each student did on each question of the assessment, which aids in intervention. Next to each question is the TEKS number. For example, the Concept Summative: Mixtures and Solutions displays students that got both questions correct, missed one, or missed both. Their score is also listed.
- Materials offer planning tools and suggestions for teachers to consider regarding the potential need for whole class review or reteaching. For example, in Concept 1, *Earth's Rotation,* Lesson 2, make observations about the changing position of the sun. Materials suggest for the teacher to divide students into small groups or pairs to discuss their predictions before recording their ideas. You may also want to consider repeating observations on different days so that students can observe that the pattern repeats. In addition, materials provide the teacher with an assessment tool, teachers can develop plans for instruction, intervention, and extension activities based on scores and standards.
- Materials guide teachers on how to analyze and interpret data from various types of assessment items. The digital product contains these documents under the Course Materials section. Teachers are provided with step-by-step instructions on how to analyze and interpret the results of the lesson and concept assessments in these documents. Teacher reflection questions are included throughout the process so that they can gain insight based on patterns or trends in the data. Additionally, guidance is provided on how to examine performance data by question or by student, as well as how to group students according to their performance. It includes information on how teachers can adjust instruction and plan future core instruction for both the whole class and individual students, along with guidelines on how to identify and use additional Discovery Education resources to supplement lessons for reteaching, remediation, and enrichment. In addition, Teachers are provided with guidance on how to access Lesson and Concept Reports, as well as the different views they are provided with.

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

- Materials offer resources and instructional support, empowering teachers to utilize diverse activities in response to student data. For example, for Tier 1 instruction, a variety of student resources are available, including direct instruction of science concepts, flashcards, interactives, and practice exercises.
- There are resources available to assist educators in addressing student data. For example, under Educator Support, teachers can click on the Hot Topics section to find various resources that will help with planning for all learners. For example, after an assessment a teacher could click on *Hot Topic: English Language Learners.* A suggested strategy includes, but is not limited to, providing closed captioning when watching a video.
- Materials provide suggestions on teacher resources, such as video clips to illustrate concepts that students struggle to understand. For example, in Concept 2, *Sun, Oceans, and Weather,*

Lesson 4, students will identify the stages of the water cycle and how the cycle connects to the sun and ocean with a video. The teacher uses questions and assesses student knowledge with gestures and vocabulary to support the content knowledge.

- Data analysis and interpretation guidance is provided in the materials. In order to better understand student performance, teachers are given reflection questions throughout the process, as well as guidance on how to group students based on performance and how to review data by question or by student. There are instructions on how teachers can adjust and plan future core instruction for the whole class or individual students, as well as guidance on identifying and using additional Discovery Education resources to supplement lessons for reteaching, remediation, and enrichment.
- CSV or Excel files can be exported from the Concept Assessment report. Using TEKs-targeted groups, teachers can manipulate the data according to their needs. Using a color-coded system, the teacher can group students whose scores on a particular standard exceed a particular threshold, for example.

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Indicator 6.3

Assessments are clear and easy to understand.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The assessments contain items that are accurate and contain minimal errors. A concept summative for Unit 1, Mixtures and Solutions, consists of age-appropriate questions incorporating new question types representing the STAAR test. For example, question 3 consists of a short constructed response explaining paint's physical properties, and includes a detailed scoring rubric. This summative assessment does not include generalizations or situations that are only relevant to certain demographic groups of students. Materials in Unit 2, Concept 3, *Electric Circuits,* Summative Assessment, provide pictures that are clear and easy to see. For example, question 1 includes photos of a wind turbine, vacuum, iPod, washing machine, and a bike. The photos are colorful and appropriately sized.
- In Unit 2, Concept 4, Lesson 10, *Light Behaviors*, materials provide a slide deck for the teacher to project to check for understanding. Materials provide the teacher with what student answers should include. It states, "Answers should mention that light travels in a straight line before striking an object." The summative assessments include assessment items that align with taught objectives and present grade-level content and concepts. For example, in the summative assessment for Unit 3, *Earth's Rotation,* students have a two-part question where they must interpret a diagram of the Sun and Earth: “What is the length of time it takes Earth to complete motion X?”

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

- The assessment tools include clear visuals and visible graphics. For example, in Unit 3, *Moon Phases and Season Concept Summative,* question 4 asks students to view the image and then place each season in the correct spot on the table. In the summative assessment for Concept 1 of Unit 4, authentic pictures portraying ecosystems and the interaction between animals and living/non-living factors are included for each question. These pictures are carefully crafted, providing clear and intricate details. By utilizing these photographs, students can effectively respond to the related questions with accuracy and understanding.
- Materials contain assessments that incorporate pictures and graphics that are suitable for the developmental level of students. A notable example can be found in Unit 4, Concept 2, where multiple questions feature diagrams of food webs. These diagrams are presented with clarity, effectively assisting students in answering the associated questions. In the concept summative for Unit 1, Comparing Matter, the images and graphics appear clear and developmentally appropriate. For example, question 4 depicts a container of liquids of different densities that are all clearly labeled and easy to understand. In question 6, a graduated cylinder is shown that is colorful and easy for students to understand. In Unit 1, Building Blocks of Matter, the pictures and graphics are colorful and clear. A graphic and photographs of chalk are used as examples of answer choices in question 2. For grade 5 students, they are easily recognizable and interpretable.

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

- Materials provide guidance to ensure consistency in testing, such as drop-down menus and selections for digitally assigning or printing assessments. Teachers can use these menus to quickly and efficiently assign and print assessments. The Table of Contents for the unit summatives for Concepts 2 and 3 suggests that the assessment should take approximately 20 minutes. The suggested time for the Concept 1 summative is missing. Furthermore, materials include a two-page Assessment Guide with an overview of the different built-in assessment opportunities, such as What Did You Figure Out? and Concept and Summative Assessments.
- Materials give opportunities for the materials to provide examples of a scored performance assessment with an explanation for each component. For example, in the Concept Summative: Earth's Rotation, materials provide the following information, Max. Score: 2 Scoring Type: rubric-scoring, Item Type: constructed-response, D.O.K.: Level 3. Materials provide an overview of the assessment, scoring procedures, answer key, and acronym key if needed. For example, in the Concept Summative: Earth's Rotation, materials explain the standard tested, how many items, and the scoring points.

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

- Materials provide guidance on providing accommodations for assessments within concept summatives that enable students to demonstrate mastery of knowledge and skills aligned with learning outcomes. Materials agree with the idea of providing accommodations for assessment tools within the lesson format. Materials provide a text-to-speech feature in the lesson format. For example, when assigning the test to a student, the teacher may select the class as well as individual students. Materials guide teachers in minimizing the number of questions a student

can have. The program guide offers suggestions on when to provide accommodations during lessons.

- Materials support accommodations in the form of language support within summative assessments. Within the Summative Assessments, teachers and students can provide language support by clicking on the drop-down and changing the language. In Unit 2, Concept 1, Lesson 4, *The Rhythm of Push and Pull*, students can opt to turn closed captioning on while viewing a video. When creating an assessment, teachers can add questions based on a specific TEKS or keyword. When the teacher assigns the assessment to students, there is an option for the teacher to unselect specific students. If a student should need an assessment with fewer questions, the teacher would unselect that particular student.

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Indicator 7.1

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- In grade 5, materials provide recommended targeted instruction such as in Concept 2, Lesson 4, where learners may have difficulty understanding that models represent objects that are too large or too small to visualize in reality. Materials provide additional examples, such as airplane models or seed models, to help students grasp the use of models as representations in science. In addition, in Concept 1, Lesson 2, materials provide students with opportunities to explore matter at multiple stations, which can be challenging for approaching learners. Teachers are advised to provide additional support by reducing the number of objects to be tested and conducting teacher demonstrations for the volume and thermal conductivity stations.
- Materials provide opportunities for scaffolding; for example, in Unit 3, Concept 1, Lesson 6, students read about the Earth's rotation. Materials provide the students with a graphic organizer to guide their learning as they read the passage. Furthermore, in Concept 1, Lesson 7, students collaborate in groups to develop their claims, evidence, and reasoning. The teacher may scaffold this process with the whole class or work individually with students. Further evidence is demonstrated in Unit 4, Concept 1, *Ecosystems Interactions;* if students struggle to complete the first part of the interactive activity, teachers guide them by encouraging them to think about what objects in the interactive activity are living and which are nonliving. Then, they have them decide which living things need nonliving things to survive. After having them use the same approach to the second part of the interactive activity after differentiating between living and nonliving things, the teacher encourages them to think about which nonliving things decay.
- Materials provide support for English Limited Proficiency Students, for example in Unit 2, Concept 3, Lesson 3, *Introduction to Forces*, with strategies tailored to different proficiency

levels, from beginning to advanced high. Students at different levels engage in activities like pushing and pulling a ball or discussing their understanding of force using sentence stems. In addition, materials also provide support for students who have not yet mastered the content. For example, in Unit 2, Concept 4, Lesson 2, *Reflection, Refraction, and Absorption*, common misconceptions are addressed, such as the belief that light can only be reflected from a shiny surface. Materials provide the teachers with items such as quarters, spoons, and aluminum foil to help students overcome these misunderstandings.

Materials provide enrichment activities for all levels of learners.

- In grade 5, Concept 2, Lesson 9, students investigate how scientists use particle accelerators in their careers through a literacy activity and guided questions facilitated by the teacher. Furthermore, the Caregiver Course Overview offers opportunities for families and students to extend their learning at home, such as making homemade ice cream to explore the process of liquids turning into solids. It provides recipes, instructions, and conversation starters to facilitate productive discussions.
- Materials provide opportunities to extend student learning. For example, in Unit 2, Concept 1, Lesson 2, *Play Ball*, teachers are provided with preparation ideas and a video to enhance their readiness for the hands-on learning experience. Suggestions include checking weather forecasts, arranging outdoor space, forming student groups, and providing playground balls. In addition, in Unit 3, Concept 1, Lesson 3, *The Cycle of Day and Night,* students engage with an online text to ask questions and make predictions about the Earth's rotation. They also participate in an interactive game to collect data on the apparent movement of planets, the sun, and other objects. Further examples of enrichment activities can be seen in Unit 4, Concept 1, *Ecosystems Interactions*, where advanced learners are encouraged to use higher-level vocabulary and work independently. They may check their completed graphic organizer with a peer before sharing it with the group. Advanced high students discuss the ecosystem of a tree using specific terms like biotic, abiotic, and decomposers.

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

- Materials provide scaffolding, such as in Concept 1, Lesson 7. Students engage in a literacy activity where they explain the tools used to measure temperature. A just-in-time scaffolding example prompts students to recall an instance when hot and cold matter came into contact, such as applying a cold washcloth to a feverish forehead. Materials provide the students with a challenge to develop an explanation based on their acquired knowledge. Furthermore, materials in Unit 2, Concept 3, Lesson 5, *Throw It, Push It, Press It,* provide a *What Did You Figure Out?* for the student at the end of the lesson. The students complete a question, and then the materials provide feedback to the student on whether it is correct or incorrect.
- In grade 5, Concept 1, *Earth's Rotation*, students construct a claim and provide evidence based on the theme of Earth's rotation. The student may work individually or with a partner to create a claim about what happens when Earth rotates, with the teacher scaffolding the process through questions. Materials in each unit include questions for teachers and activities for students that scaffold learning by providing additional support. These supports cater to English Language Learners at different proficiency levels and include differentiation strategies for struggling and advanced learners. For example, In Unit 4, Concept 4, Lesson 2, *Instincts and Learned Behavior,* differentiation strategies are provided for advanced learners. Students are

prompted to think about the dog from an interactive and brainstorm other ways instinctual behaviors can help it survive. They are then asked to provide examples of learned behaviors that support survival.

Discovery Education Science Techbook for Texas Grade 5

Indicator 7.2

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

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

Meets | Score 2/2

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

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. Materials consistently support flexible grouping. Materials consistently support multiple types of practices and provide guidance and structures to achieve effective implementation. Materials consistently support multiple types of practices 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 suggest ways to use real-life examples. For example, in Unit 1, Concept 2, students investigate the expansion of gas and make claims about the composition of matter. Students explore the arrangement of particles in solids, liquids, and gasses, describing the relationships between particles through further investigation. The concept of building blocks of matter is introduced, along with career opportunities in the STEM field. Furthermore, in Unit 2, Concept 3, Lesson 4, *Electricity*, students participate in an interactive activity with conductors, enhancing student engagement. Additional resources such as reading passages, explorations, and images are provided for teacher reference. In Unit 2, Concept 1, Lesson 6, *Changing Directions*, students explore an interactive activity with soccer players and ball kicking, allowing them to change the number of players and kicks to further investigate changes in direction.
- In Unit 4, Concept 4, Lesson 2, *Learning*, students are shown slides and asked questions by the teacher, which they investigate and record in their graphic organizer. Vocabulary guidance is provided, and they independently take an assessment to gauge their learning. Different instructional approaches are employed to help students master the content. Throughout each

lesson, the teacher ensures students comprehend vocabulary, provides support for scientific themes, and tailors instruction to meet the needs of English language learners. Differentiation strategies are employed to support both struggling and advanced learners.

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

- Materials consistently support flexible grouping, such as in Concept 2, Lesson 4, where students build models of matter to demonstrate its composition and arrangement of tiny particles. In small groups, students will discuss common solids, liquids, and gasses while teachers address misconceptions individually. At the end, students will share their experiences in a whole-group setting. In addition, Concept 1, Lesson 2, involves students comparing and contrasting types of matter through observations and measurements. Students start individually and then move to a partner setting to share their knowledge. Later, they work in small groups at different stations, participating in turn-and-talk discussions. Additionally, in Unit 2, Concept 1, Lesson 2, *Play Ball*, teachers support advanced learners by having them work with a partner to create a Venn Diagram comparing the patterns of force and motion between a ball and a pulled ball.
- Materials provide differentiation strategies for English Language Learners. In Unit 2, Concept 4, Lesson 1, *How Does Light Travel?* teachers can provide sentence stems to assist students in discussing light, such as "Light comes from _____" or "I can see light _____." Furthermore, in Unit 4, Concept 1, *Ecosystem Interactions*, students engage in whole-group questioning. Students work in small groups to prepare a camping list, determine essential survival items, and discuss observations and interactions with a partner. Students independently complete an assessment. Materials provide lessons to promote collaborative work among students, enabling investigations and discussions on key scientific ideas supported by text and media. Formative assessment tasks require students to synthesize their learning independently in the *What Did You Figure Out?* section of each lesson.

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

- Materials consistently support different types of practices such as in, Concept 3, Lesson 2, the teacher demonstrates the separation of a mixture with a bowl of fruit to illustrate the lab's purpose. The teacher provides guidance throughout the activity by conducting vocabulary checks, asking probing questions, and facilitating structured hands-on activities. The teacher monitors misconceptions and facilitates group discussions. In addition, in Unit 1, Lesson 4, the teacher prepares students for a hands-on activity by conducting a real-world phenomenon investigation and an interactive activity on matter's particle arrangement. During the lab period, the teacher facilitates independent and collaborative learning opportunities, providing structured support for students.In Unit 2, Concept 1, Lesson 6, *Energy and Forces*, students complete a literacy activity using a provided graphic organizer or creating their own. They then discuss the teacher's question with a partner, exploring why moving a car requires more energy than moving a feather and supporting their reasoning. Furthermore, throughout Unit 4, students engage in collaborative work, both in small groups and with partners. The teacher guides learning through modeling and questioning. In every lesson, the teacher actively supports students by moving around the classroom, monitoring for misunderstandings, and providing help during group discussions. Engaging questions and hands-on activities promote learning. Demonstrations are used when needed to ensure clear understanding. Students have

opportunities for whole-group and small-group discussions, as well as independent or partner work.

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

- Materials provide opportunities for diversity, such as *The Concept Summative Assessment* in Unit 1, which assesses students' ability to compare and contrast matter based on observable physical properties. The assessment includes examples featuring diverse identities, such as a male chef, a female scientist, and a male mechanic, emphasizing inclusivity and representation. Examples of diverse names representing various ethnicities, races, and nationalities are also included in the questions. Images throughout the materials reflect the diversity of school communities and align with the content. The pictures in the explore lessons depict both male and female individuals from different ethnic backgrounds, showcasing a range of characteristics like race, ethnicity, gender identity, age, disability status, body size and shape, and hair texture.
- Materials provide a comprehensive representation of diverse communities and cultures. For example, Unit 4 specifically exposes students to both rural and urban areas, fostering a broader understanding of community diversity. Furthermore, materials celebrate the diversity of students themselves by prominently featuring a wide range of characteristics, including race, skin color, and gender. Further examples are provided by materials in Unit 2, Concept 3, Lesson 7, *Super Slippery Slide*, where an investigation takes place in a rural area with a lake, providing students with exposure to different locations and contexts. Materials also incorporate feedback from scientists of diverse ethnicities and nationalities within the video and investigation, further reflecting diversity.

Discovery Education Science Techbook for Texas Grade 5

Indicator 7.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials include guidance for linguistic accommodations such as, emerging bilinguals are provided with scaffolded approaches to English language proficiency at the beginning, intermediate, advanced, and advanced high levels. For example, Unit 1, Concept 1, Lesson 3 enables students to compare and contrast types of matter based on mass measurements. Teachers provide scaffolding support for the emerging bilingual. Advanced learners receive assistance revising the vocabulary words volume and density. As a group, students discuss the relationship between density and volume. By generating a list of adjectives related to the properties discussed in the lesson and by adding one adjective to each column of the properties chart, students can create an example of an object with a large volume and a small density. In Concept 4, *Rocks and Fossil Fuels*, the ELPS students use sentence stems to share their observations about the rocks. For example, the sentence stems such as, I notice, I wonder by asking several students to share with the group.
- Materials allow Emergent Bilingual students to explore the interactive, review the words such as biotic and abiotic, and relate them to living and nonliving things. Students will underline the word bio and explain that it means life. This allows them to connect bio to related words (e.g., biology is the study of life, or biography means writing about the life of somebody). The teacher provides images of living and nonliving things and writes abiotic and biotic on the images. Whereas intermediate students do the interactive and the graphic organizer with a partner. As students navigate through the interactive, have students point to and identify which parts of

each ecosystem are abiotic and biotic. In addition, within the Discovery Education Help Center, teachers can find a variety of texts and resources to support them. This includes a variety of resources such as videos, images, and reading passages.

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

- Materials provide opportunities for a strategic approach to using students' first language to foster their linguistic, affective, cognitive, and academic development in English. For instance, in each Unit, within the Unit Resources section, there is a section labeled "Flashcards." Materials provide teachers with access to printable flashcards that encompass the vocabulary studied throughout the unit. These flashcards display pictures and words on one side, with their corresponding definitions in both English and Spanish on the other side. Among the words included, some are cognates. For example, in Unit 1, Matter, the cognates include words like "chemical energy/energía química" and "equal force/fuerzas equilibradas." Additionally, for any concept with an interactive activity, students can choose whether they want to complete it in English or Spanish, ensuring they can best comprehend and independently engage with the activity. In the Spanish version, all instructions, information, buttons, and the immersive reader are presented in Spanish.
- Materials comprise textbooks or audio/video clips that present concepts in languages other than English. For instance, they offer links for translation into the student's first language. Throughout the materials, an immersive reader is available within the vocabulary pop-up feature, providing reading support in 122 different languages. In "present to class" mode, there is an emergent reader tool option that translates the presentation into multiple languages. Additionally, the materials include video clips that explain concepts in languages other than English, and all videos can be closed-captioned in multiple languages. However, some users may find it challenging to understand how to change the language when attempting to do so.

Discovery Education Science Techbook for Texas Grade 5

Indicator 7.4

Materials provide guidance on fostering connections between home and school.

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

Meets | Score 2/2

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

Materials provide information to be shared with students and caregivers about the design of the program. Materials provide information to be shared with caregivers for how they can help reinforce student learning and development. Materials include information to guide teacher communication 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 suggestions on how information can be shared with students and caregivers; for example, in the Caregiver Course Overview, located within the Course Materials. The overview states, “Your child’s teacher is using Discovery Education in their classroom to engage students in their everyday learning through a variety of resources—video, image, audio, interactives, and more. Your child can sign in anytime to engage with exciting digital activities and resources across a variety of subjects, grades, and topics of interest.”
- Materials provide a Parent/Guardian Letter that can be found in all units under course materials. The letter explains to families that students will experience videos, hands-on activities, labs, and game-like activities.
- Materials provide teachers with information for students and caregivers, such as in The Caregiver Overview, which guides caregivers on how to use the information in simple language. For example, “More details on what we are exploring, along with some suggested ways you can support student curiosity at home, are provided for each unit. Allowing students to make observations of the world around them encourages them to continue to ask questions about the real-world phenomenon we are uncovering in each unit.”
- Within the grade 5 course materials, a teacher reference parent letter is included. The parent letter encompasses details about the textbook, program, TEKS (Texas Essential Knowledge and Skills), and instructions on accessing the textbook online. Furthermore, the letter comprehensively outlines the captivating features, including dynamic content, videos, digital tools, hands-on activities, labs, and interactive game-like activities that actively involve the students.

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

- Materials provide information in the Caregiver Course Overview to assist caregivers in reinforcing learning and development at home. For example, the unit's key ideas for Matter, Mixtures, and Solutions include: “I can describe, compare, and contrast matter by observing and testing its properties.” Additionally, the overview includes conversation starters, examples of phenomena at home, and key vocabulary such as conductor, density, insulator, magnetism, mass, solubility, volume, matter, particle, combine, conserve, dissolve, matter, mixture, properties, solution, and substance.
- The Course Materials within the Caregiver Guide provide a home connection with Phenomenon in the Home and Conversation Starters. For example, one activity for Phenomenon in the Home materials gives a learning opportunity where students play a game of tug-of-war to look at equal and unequal forces.
- Materials provide suggestions on how to share information. For example, the Caregiver Overview includes Home Connections and links to Phenomena in the Home. For example, “Choose a city or cities where it is nighttime when it is daytime for you. Review and choose a webcam that streams daily to teach your student about the presence of life and activity in the dark when they are in the light. This presents an opportunity to talk about Earth’s rotation and the motion of the sun, moon, and stars. It is also a great opportunity to talk about geography and different places on Earth.” Caregivers are given root words to practice vocabulary at home. For example, “Explore the Latin roots of words such as energy and conductor. When and where were they first used? What are the words for these concepts and phenomena in other languages?”
- Teacher guidance materials include a parent letter detailing the textbook, program, TEKS, and instructions on accessing the textbook online. Furthermore, the letter comprehensively outlines the captivating features, including dynamic content, videos, digital tools, hands-on activities, labs, and interactive game-like activities that actively involve the students.

Materials include information to guide teacher communications with caregivers.

- Materials provide sufficient guidance for the teacher on communicating with caregivers, such as in the Parent Letter and the Caregiver Course Overview. In addition, the *Family Resources* in the Help Center will be beneficial for parents to support students at home while using Discovery Education. The *Discovery Education Guide for Families* includes screenshots of how families can log in, navigate the home page, find assignments, search for resources, and work in studio. Resources are user-friendly and specific.
- Materials provide support for teacher communication with caregivers. A few examples can be seen under the parent letter. The parent letter provides parents with details about the curriculum. For example, “Students engage with interactive science materials to analyze and interpret data, think critically, solve problems, and make connections across science disciplines.” Materials include visual aids in the form of screenshots to assist educators in locating support effortlessly, but also offer Family Resources within the Help Center. These resources will be advantageous for parents in aiding students at home while utilizing Discovery Education. The Discovery Education Guide for Families encompasses step-by-step screenshots illustrating the process of family members logging in, navigating the homepage, locating assignments, searching

for resources, and engaging with studio activities. The provided resources are designed to be intuitive and tailored to the users' needs.

Discovery Education Science Techbook for Texas 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.	M
3	Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.	M

Meets | Score 2/2

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

Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built in the course materials. Materials provide clear teacher guidance for facilitating student-made connections across core concepts, 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.

- Materials provide scope and sequence under the course page. Each teacher accesses the TEKS-aligned scope and sequence information through the course page: materials guide/direct teachers through the units, concepts, and lessons, including detailed pacing instructions. As for the lesson, teachers can view, print, save, post, and add to a digital playlist for teachers and students through the unit and pacing page within the teacher resources. Furthermore, in the table of contents at the top of the page for each grade level, the TEKS and the number of lessons are listed for each unit. Each lesson corresponds with a specific TEKS. The teacher can follow the link to view the expanded TEKS.
- Each unit contains examples of sequential outlining. The unit outlines lessons with skills, vocabulary, and course materials to teach each lesson. There are various ways to provide the information to the students digitally, in whole group, and printed. For example, the materials for grade 5, Unit 2: Force and Energy, include a menu that identifies unit resources with pacing, planner, background knowledge, hands-on activities, and standards correlations.

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

- Teacher and student guidance is evident under teacher resources and student materials. For example, In Unit 3: Lesson 3, there is an interactive activity where students model the process of the formation of fossil fuels. This model allows for further exploration across the scientific

practices and themes in the unit. A teacher guide offers multiple opportunities for teachers to revisit specific scientific and engineering practices. The teacher is also given specific questions to facilitate student discussion.

- Force and Energy, Lesson 2 contains student-made connections where students are guided through an investigation about how forces can change the direction or position of a ball. Guiding questions and a video in the lesson help teachers understand how to facilitate the investigation. Furthermore, in Electric Circuits, Lesson 6, Electric Transformations, the materials suggest ways for students to make connections in learning by identifying the requirements for a functioning electrical device, explaining that electrical energy can be transformed into heat, sound, and motion energy, and modeling an electric transformation. Research and innovation opportunities support scientific and engineering practices throughout the materials.
- Materials provide clear teacher guidance for recurring themes and concepts. For example, in Electric Circuits, Lesson 8: Radio Messages from Space, students research scientific and engineering processes about circuits. This research creates connections across core concepts and promotes recurring themes and concepts. In each unit, the materials provide STEM lessons, real-world connections, hands-on activities to connect 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.

- Materials suggest ways to provide review and practice by including materials that provide check-in opportunities for content spiraled back and reviewed by students while also practicing the new STAAR-aligned question types. Moreover, each lesson consists of the 5E model and has an elaboration opportunity that reinforces concepts and gives opportunities for review and practice of gained knowledge. For example, in Force and Energy, Lesson 9: Force and Energy, students describe the different types of forces that affect objects, explain how forces affect objects, and explain how energy is transferred to objects through applied forces.
- The summative evaluation piece fosters mastery and retention of knowledge and skills. The summative evaluation portion allows students to type in a response and show mastery through a multiple-choice response. Likewise, the materials provide a What Did You Figure Out? in various lessons within each unit where students demonstrate mastery. Also, activities are provided to teachers to use with Emerging Bilingual students and students that did not master the concept.
- Materials provide a spiraling of knowledge and skills throughout the year by recalling prior knowledge by making connections. This connection is evident in the Engage portion of Unit 1 Lesson 1: How Can We Compare Matter? Also, in Ecosystem Interactions, Lesson 1, the teachers make connections about what the students already know about the content to activate prior knowledge. Other examples are in the Concept Summative, where there is an opportunity for spiral review as the students access prior knowledge and experience to make claims and demonstrate understanding.

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Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Each unit in the Teacher's Edition begins with the concept structure and pacing. Two pathways per concept are offered to support the diverse scheduling needs of teachers. The structure and pacing outline displays the connection between instructional days, 5E phases, lesson titles, lesson type, and time frame for each lesson. The materials provide a Background Knowledge page to familiarize teachers with the lesson activities. Teacher resources provide directions to facilitate lessons. For example, in Unit 1, Concept 2, Lesson 8, What Is Matter Made Of? the hands-on activity section includes recommendations for advance preparation: "Gather all materials in advance. Demonstrate how to properly use eye protection. Small cups, vinegar 200 mL (6.75 fl oz)."
- Materials provide multiple opportunities for hands-on learning to take place. For example, in Unit 4, Concept 1, Lesson 1, students have a hands-on activity with a suggested time of 30 minutes. The lesson guides teachers through questions, material lists, and other questions. The material provides teachers different options for students to learn and assess knowledge. In Unit

4, Concept 3, teachers are provided with a Concept Check-In for students at the end of the unit. This activity allows for student assessment with ease of implementation.

- There is a gaming icon on the instructional slide deck for interactive technology lessons, like Lesson 3: Monster Truck Pull, in Unit 2: Investigating Force and Energy. The teacher's directions explain the rationale and a timestamp for the activity. The interactive lesson closes with the teacher asking probing questions about the activity.

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

- The unit planner provides the teacher with a summary and overview for each lesson in the materials. The unit planner allows support using the ELPS. Each unit includes strategically bundled concepts, ensuring students uncover all core scientific content. Concepts within each unit are structured with lessons that follow the 5E Instructional Model Framework (Engage, Explore, Explain, Elaborate, and Evaluate).
- Furthermore, in Ecosystems and Interactions, Lesson 7, the TEKS and lesson objectives are unpacked and explained in the unit introduction and overview. The content provides the lesson objective. In the Course Materials link at the top of the page of Unit 2, the grade 5 science TEKS and ELPS are provided to correlate to the lesson. The resource tab on the left corner of the materials also has links to read the TEKS for science and ELPS standards in detail.

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

- Materials are available in print and digital formats to support teachers and students. They can be found within the lessons and in the Unit Resources, Hands-on Lessons Preparation overview. Furthermore, teachers can view detailed lists of materials for lab investigations provided within the lessons, such as in Concept 4: Rocks and Fossil Fuels, Lesson 2: Modeling Deposition, and Rock Formation. The lesson includes a list of materials each group will need to complete the hands-on activity and a list of specific materials for the teacher. Additionally, located within the Unit Resources, the materials provide lists to prepare all activities.
- Materials explain what is needed and how to implement the investigation. Another example is that the materials are listed for each group activity in Unit 1, Lesson 2, Matter Exploration Stations. In the Educator Notes for the lesson, each workstation has a list of the materials. It also explains the station preparation, followed by a video of the activities.

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

- The Hands-On Lesson Preparation and Materials says, “Post the materials list and safety precautions on the board for students to refer to during the lesson.” Materials suggest ways to provide safety practices under Educator Notes.
- Materials provide detailed instructions on how teachers and students should follow safety guidelines during investigations under the course materials document labeled “Safety in the Classroom.” The document includes specific information such as, “Eating and drinking are not allowed during an investigation. If asked to observe the odor of a substance, do so using the correct procedure known as wafting, in which you cup your hand over the container holding the

substance and gently wave enough air toward your face to make sense of the smell." In addition, the course materials include a Science Safety poster. This document contains general safety guidelines the teacher can display in the classroom, such as "Tie back long hair" and "Clean up and wash your hands."

- Materials provide a K-5 Safety Letter to follow standard safety practices for classroom investigations. The letter provides guidelines for appropriate dress, essential steps for accidents, and safe investigation behaviors. For example, "During the Investigation, be sure to follow the procedure steps exactly. Use only directions and materials that have been approved by your teacher."
- Materials in grades 3–5 provide teachers and students with investigations that are presented with safety practices. For example, in grade 5, Unit 1, Concept 2, Lesson 2: Matter Exploration Stations, the following safety guidelines are presented to the teacher and students within the lesson, "Activities involving water should be set up far from activities involving electricity." In addition, Unit 2, Concept 2, Lesson 2: Creating a Catapult, states, "Follow all lab safety guidelines. Wear safety goggles. Do not aim or shoot your catapult at anyone."
- Materials in grade 5, Unit 1, Concept 3, Lesson 2: Combining and Separating Mixtures, provide the teacher with safety reminders such as, "Do not eat or drink any of the substances" and "Clean up spills immediately."

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Indicator 8.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials provide a pacing guide. The guide presents a comprehensive pathway and an express guide. The guide provides teachers with a suggested time for each lesson component within each unit. The beginning of each unit presents a concept structure and pacing in the Teacher's Edition. Teachers can select from two pathways for each concept to meet their scheduling needs. An outline of the structure and pacing demonstrates the connection between instructional days, 5E phases, lesson title, lesson type, and time frame. Each lesson has a projected completion date posted, but teachers may assign work digitally for asynchronous learning. On each lesson page, the assign button is in the top right corner.
- Under teacher resources, there is a Unit Structure guide, and there is a Comprehensive Concept Pathway for the 5E lessons. Each 5E lesson has the number of days and minutes required to teach the lesson. In the Educator notes of the lesson format, each part of the lesson has estimated time allotments. In Concept 1: Ecosystems Interactions, Lesson 2, the introduction and objectives allot for five minutes, interactive, 12 minutes, and the last segment, three minutes.

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

- Materials guide implementation by providing a visual scope and sequence for each unit to teach the material strategically. No matter which concept pathway a teacher chooses (the Comprehensive Concept Pathway or the Express Concept Pathway), the sequence of the

material remains the same. Additionally, the beginning of each unit in the Teacher's Edition presents a concept structure and pacing. Multiple lesson pathways provide connections between the instructional days, 5E phases, the lesson title, lesson type, and the timeframe for each lesson on the outline of the structure and pacing.

- Under the teacher resources, the materials provide teachers with a K-5 Program Guide. This guide gives the progression of the scientific concepts and how they progress at each grade level. The guide offers a vertical alignment document that outlines the TEKS for each unit and how they align across the different grade spans.

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

- The materials allow teachers to assign virtual lessons. The lessons can be completed at a teacher's discretion or, if needed, student's pace. Teachers may use the pacing guides and the suggested time for each lesson within the unit. The pacing of the whole grade level is intended to be completed in one school year.

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Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Materials include sufficient white space and are designed to support and not distract student learning. For example, in Unit 1, Concept 1, Lesson 7, students engage in a literacy activity about comparing the states of matter. There is an easy-to-read instruction and guidance page for teachers and students. The white space, the color, and the neatness of material design elements are well-balanced. Putting all of these elements together produces a visually pleasing, yet organized result.
- Materials in Unit 2, Concept 1, Lesson 5, *Changing The Speed of Motion,* include student objectives, TEKS, and lesson time all located along the right side of the screen. This is consistent across all concepts and lessons. The text in Unit 2, Concept 1, Lesson 6, *Energy and Forces*, is easy to read with adequate white space and graphics that help to support the learner while working on this lesson.
- Materials provide reading strategies to guide students through the text as the teacher reads aloud. For example, In *Concept 1, Moon Phases and Seasons, Lesson 4*, materials state, “Encourage students to listen carefully while looking at the pictures to make connections.” This guides teachers to read the text aloud as students follow along, stopping to discuss the images and other key ideas and details. Digital materials include links to previous lessons and ancillary materials teachers can access to support differentiated learning within units. For example, in *Concept 1, Moon Phases and Seasons*, the digital text allows the teacher and students to click on the vocabulary links for more details.
- Materials are thoughtfully designed, paying careful attention to spacing and layout, which enhances the readability and comprehension of the lessons. Materials are user-friendly,

providing an informative learning experience that meets the needs of students. The effective use of white space, color, and neatness creates a visually appealing presentation. Importantly, these design elements are purposefully incorporated to minimize distractions for teachers when locating specific lessons.

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

- Materials include age-appropriate visual aids such as in Unit 1, Concept 2, Lesson 7, which includes actual photographs. A picture of an iceberg in the ocean is accompanied by information regarding solids, liquids, and gasses. The presentation includes graphic organizers with white space and blue borders. The title of each slide is written in purple and is accompanied by a small robot figure at the bottom right of the slide. In Unit 1, Concept 3, *Mixtures and Solutions*, a photograph of a bowl of fruit is included in the student presentation. A colorful photo of a lava lamp appears later in the presentation along with a small robot-like character. Age-appropriate font colors include purple, pink, and black.
- Materials include pictures that are age appropriate and include school-aged children. Unit 2, Concept 1, contains pictures and graphics that are visually appealing and of a size that is easy to see. The materials in Unit 2, Concept 2, Lessons 4 and 6 both contain pictures on the tiles that are school-aged children that demonstrate the children using force.
- The materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, In *Concept 2, Weathering and Erosion,* the students conduct a hands-on investigation to explore glaciers. The materials provide T-charts for students to compare their observations of erosion on different surfaces of clay and ice. The materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, in *Concept 3, Renewable and Nonrenewable Resources,* students make claims about natural resources using pictures and videos to help them connect with the content.
- The materials within Unit 4, each vocabulary word is accompanied by a visually engaging graphic that complements the word, enriching the student's learning experience. A noteworthy example of this is the term *behavioral trait*, which is depicted by an image of a dog skillfully catching a ball. The materials in Unit 4, specifically in Concept 3 on *Structure and Function*, during Lesson 8, students are introduced to a collection of four real-life animals and are tasked with grouping them based on specific criteria. By providing students with actual photographs rather than cartoons, they are able to apply the knowledge acquired in previous lessons, facilitating a practical understanding of the subject matter.

Materials include digital components that are free of technical errors.

- The materials in Unit 1's vocabulary section contain no technical errors, as demonstrated by this excerpt from the Key Concepts portion of the *dissolve* card. ”Do you like sugar in your tea? When you add the sugar and stir, it looks like the sugar has disappeared. How do you know that the sugar is still there? Take a sip. Yes, it is sweet. The sugar has dissolved into the tea, which makes the tea sweet.” The materials in Unit 1, Concept 2, Lesson 1, and the student presentation does not contain errors. As an example, the following is an excerpt from a slide about mixing matter. “What happens to the materials when they are mixed together? How does the water change? Can it be changed back into just water?”

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- Materials in the slide deck for Unit 2, Concept 3, Lesson 7, *Why are Electrical Circuits Useful*? contain a slide for students to enter their own claim and reasoning for evidence. Students then submit without any technical errors. Materials in Unit 2 open up without any technical errors. Teachers can present the slide deck to the class with a single click.
- Materials provide accurate information in the vocabulary section of Unit 3, *Earth, Moon, and Seasons.* Materials provide audio, video, and written explanations of each term. In the Concept Assessment for Unit 3, the answers and examples are error-free. For example, number 2 directs students to select the correct term with the definition in a drag and drop. The answers are weathering, erosion, and deposition.
- In Unit 4 materials, specifically within Concept 2 on *Ecosystem Changes*, Lesson 4 includes an authentic photograph of Yosemite Park. This captivating image is accompanied by information stating that national and state parks not only offer wonderful recreational opportunities but also serve as protected habitats for diverse organisms. The accompanying narrative is meticulously crafted, devoid of any spelling or grammatical errors. Moreover, both the information and graphics are flawlessly presented without any technical inaccuracies.

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Indicator 9.2

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

1	Materials integrate digital technology and tools that support student learning and engagement.	Yes
2	Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content.	Yes
3	Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.	Yes
4	Materials integrate digital technology that is compatible with a variety of learning management systems.	Yes

Not Scored

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

Materials integrate digital technology and tools that support student learning and engagement. Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content. Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate. Materials integrate digital technology that is compatible with a variety of learning management systems.

Evidence includes but is not limited to:

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

- Digital technology and tools are incorporated into materials to enhance student learning and active participation. Tools such as note-taking, an immersive reader, glossaries with animations and videos, and editable forms are embedded in materials. A virtual whiteboard is included with the materials, which can be customized with grids, backgrounds, images, shapes, colors, etc. For each unit, students have access to a digital notebook where they can enter and save annotations. Digital technology and tools are available within materials to enhance student learning, including videos, interactives, simulations, and online assessments. Through an interactive digital activity in Unit 1, Concept 3, Lesson 5, students will explain that certain materials cannot be dissolved in water and identify the conditions that speed up or slow down dissolving. In this activity, students will stir solid substances into water and observe their dissolution process. Different substances will be used, and the results will vary for each substance. As a result, the students will observe that heating a solution can result in a separation of the solution.
- Materials integrate digital technology and tools to support student learning. For example, in Unit 2, Concept 3, Lesson 4, *Electricity*, students explore making circuits complete and what is attracted to a magnet in an interactive game. Materials provide slide decks in each lesson that

the teacher can project or assign to students to support learning and engagement. The slide decks are also accessible when a student logs in.

- Digital technology and tools enhance student learning through features like learning games and interactives such as in the Explore lesson in Unit 3, Lesson 3, *The Cycle of Day and Night,* where students can observe simulations of day and night. Evidence of how materials integrate digital technology and tools that support student learning and engagement is found in the Unit Planner. The lessons are color-coded to identify the lesson type such as interactive and time needed for the activity.
- A diverse range of integrated resources is incorporated in materials to foster student engagement and facilitate learning. These resources include functionalities like note-taking, an immersive reader, glossaries enriched with animations and videos, and customizable forms. For instance, students are given a digital notebook for each unit, empowering them to add and save annotations. Additionally, materials integrate a virtual whiteboard with a comprehensive set of features, allowing users to insert grids, backgrounds, images, shapes, colors, and other elements to enhance their learning experience.

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 use digital technology to enhance student engagement with Science and Engineering Practices (SEPs), Recurring Themes and Concepts (RTCs), and grade-level content. In Unit 1, Concept 3, Lesson 1, students are presented with a video of the phenomenon of a lava lamp, which is a mixture in motion. Students are asked to observe and wonder through their observations and ask questions. This supports the Science and Engineering Practice standard 5.1, and explains the phenomenon using vocabulary such as *mixture* and *solution*.
- Materials integrate digital technology, such as in Unit 2, Concept 1, Lesson 2, *Play Ball*, where the students play a game with a ball in small groups. Students are engaged in learning while exploring with different balls and forces. While students are making claims, finding evidence, and giving reasoning in Unit 2, Concept 2, Lesson 8, *How Do Forces Affect Objects?* materials support student engagement. The digital slide deck provides a slide, *Supporting Science Themes*, where students are asked, “What cause and effect relationships did you identify or investigate to explain phenomena or to analyze problems?” Students then manipulate the slide deck to make a claim and find supporting evidence.
- Materials allow students to interact with the content through an interactive activity. In Concept 2, Lesson 2, *Sun, Oceans, and Weather,* there is an interactive activity that walks a student through the concept and provides moments for the student to engage with materials such as a drag-and-drop activity and or fillable graphic organizers.
- Materials incorporate digital technology that effectively supports the application of science and engineering practices. Within Unit 4, specifically, Concept 1, Lesson 2, *Interactions in Ecosystems*, interactive activity is integrated to align with the TEKS standards. This activity enables students to manipulate ecosystems, illustrating the intricate interactions between biotic and abiotic factors. After students watch a video and complete a graphic organizer, the materials provide an opportunity for them to respond to the content. This response is captured through quick writes, which students utilize to craft a paragraph summarizing the key points of the video.

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

- The digital technology-infused materials facilitate collaborative engagement for teachers and/or students. For example, Discovery Education's Help Center describes a collaboration application called Studio. Studio's chat feature gives users a platform to ask questions, share ideas, and get feedback, allowing productive collaboration. Collaborating on projects with this interactive tool is possible for students and teachers. Materials include a virtual whiteboard for students and teachers to collaborate, conduct activities, and share videos, notes, and images. The virtual whiteboard can be utilized by teachers to actively engage students in learning.
- Materials provide a video conferencing platform and encourage the use of other digital tools for student engagement in group projects and discussions. For example, the Discovery Education Studio provides students and teachers with tools for Synthesizing learning by creating boards that allow students to incorporate multimedia information from multiple sources, including Discovery Education content as well as their content and artifacts, like videos, images, illustrations, and original text. Materials provide a virtual notebook for students and teachers to use, encouraging creativity and collaboration through such means as brainstorming and taking notes on each concept. For example, the Unit 3, *Earth, Weather, and Land* unit allows students to insert notes that can be shared with the teacher or other students.

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

- Discovery Education grade 5 materials can be accessed online with various devices, including Chromebooks, iPads, PCs, Apple computers, and smartphones. In addition to downloading and printing the materials, teachers can provide students with hard copies of the text, organizer, and activities. The only way to access interactives, virtual labs, boards, and other web-based interfaces is online, even though images and videos can be downloaded for offline use.
- Materials work with most learning management systems such as Canvas, Schoology, Google Classroom, Microsoft Teams, and Bright Space. The Help Center supports teachers in incorporating specific materials into their learning management system. Students can access Discovery Education from a home device, such as a Chromebook or laptop, as well as a mobile device. The student's username and password will be the same for all devices.
- Materials are downloadable and accessible without internet access. Discovery Education promotes the use of the download and print buttons from either your browser or within the Techbooks (depending on the assets that you are working with). The print feature enables the teacher to provide the students with a hard copy of the text, organizer, and activity as well as a “Print to PDF” option that captures the page, tab, or concept in an offline document format (PDF) that can be stored on a device for use when the internet is not available. Materials are supported on multiple devices.
- Digital materials ensure compatibility with diverse learning management systems. For example, teachers can directly share resources from Discovery Education to Microsoft Teams using the materials. They can easily locate a desired resource and share it with their students. The Help Center for Educators provides a comprehensive, step-by-step guide for this process. Information about operating system requirements and compatible devices can be found at the bottom of each unit, allowing teachers to ensure compatibility. Materials automatically check the requirements of the device in use and provide a report accordingly. Additionally, teachers can download specific activities and videos in PDF format.

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Indicator 9.3

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Materials include live hyperlinks to other online resources to facilitate planning and access. In Unit 1, Concept 3, a teacher can click on the vocabulary hyperlink to access digital vocabulary cards containing definitions, pronunciations, images, videos, animations, and context. For example, the vocabulary word *mixture* is defined as "a combination of substances that can be physically separated from one another." The word is elaborated in the Key Context of, "Have you ever made a salad? First, you chop up vegetables. Some of them could be lettuce, tomatoes, cucumbers, and onions. Then, you toss them together in a bowl. You have just made a mixture. A mixture is a combination of different things but each thing stays the same. Now if you do not like the onions, you can pick them out of your salad, because it's a mixture!"
- Materials provide tips for selecting grade-appropriate resources, guidance on how to effectively integrate the components into lessons, and suggestions for evaluation of student learning via digital components. For example, in Concept 1, Lesson 3, *Earth's Rotation*, materials provide detailed instructions on delivering the interactive lesson as well as levels in which students will progress as they complete the activity.
- To facilitate planning and streamline access to resources, materials incorporate live hyperlinks to various online content. Teachers are conveniently provided with links to tutorials that guide them on how to implement specific parts of the lesson effectively. For example, there may be a link to a tutorial showcasing a Spotlight on Strategies called *Sticky Back*, which serves as a

valuable after-reading literacy strategy. These hyperlinks enhance the ease and efficiency of accessing relevant instructional materials, enabling teachers to seamlessly integrate effective strategies into their lessons.

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

- Materials provide teacher guidance with embedding technology, such as using mass measurements, and students compare and contrast types of matter in Unit 1, Concept 1, Lesson 3. Teacher materials include a detailed description of what students will do before, during, and after the digital component. The student places the object on the balance. They then select a second object, which also gets moved onto the balance. The students then predict which object has more mass. After the prediction, the actual masses of the two objects are revealed." Additional support is provided through statements such as, "To guide their thinking as they explore, have students think about the following questions as they use the interactive. What do you think of the statement “Large objects always have more mass”?
- Materials provide opportunities for teacher guidance. Under Instructional Strategies in the Help Center, teachers can navigate and find various videos for professional development. For example, the SOS Learning Strategies Videos for Students are available for teachers to view, become more familiar with the strategies found within lessons, and show to students as well. At the top of each class, there is an assign button for teachers to assign the lesson to students. There is also a drop-down menu with additional options. For example, in Unit 2, Concept 1, Lesson 8, Launching an F-18, the teacher is given options such as, but not limited to, "share lesson" and "add a lesson to my content."
- Materials provide teacher guidance for the use of the embedded technology to support and enhance student learning in the lesson guide for the interactive lessons. For example, in Lesson 3, Unit 3, *Earth and Weather*, materials provide teachers with background information to build content knowledge, the instructions for the activity, and how to implement the activity on the interactive slides. Materials provide pacing and lesson types in the Unit Planner Guide.
- Materials encompass effective strategies for utilizing embedded technology to personalize instruction, foster collaboration, and seamlessly incorporate multimedia resources into the classroom. Within Unit 1, there is an interactive help center where teachers can submit inquiries or seek assistance on specific topics. When adding the topic of collaboration, the bot offers the opportunity to collaborate using Studio, a platform that enables users to share and collaborate on slideshows with others. Both teachers and students have access to this collaborative feature. Furthermore, within the Help section, teachers can provide parents and caregivers with valuable information to foster student engagement at home. Discovery Education offers a range of communication templates to support program implementation in schools or districts. These templates, in the form of flyers, are specifically designed to announce and highlight the partnership between the school or district and Discovery Education. They cater to various audiences, including district administrators, teachers, and parents. It's noteworthy that the parent flier has also been translated into multiple languages, ensuring accessibility for diverse communities.

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

- Materials are available to parents and caregivers to support student engagement with digital technology and online components through the Caregiver Course Overview. The document states, "Your student can sign in anytime to engage with exciting digital activities and resources across a variety of subjects, grades, and topics of interest." For vocabulary practice, "Discovery Education provides a free puzzle-maker tool to reinforce vocabulary with students at home. Feel free to access the puzzle-maker at https://puzzlemaker.discoveryeducation.com/" The Puzzlemaker is a "puzzle generation tool for teachers, students, and parents. Create and print customized word search, criss-cross, math puzzles, and more using your word lists."
- Materials provide a Parent/Guardian Letter informing families about Discovery Education. It gives a screenshot of what to expect when logging in as a student. Parents are made aware of a QR code and information regarding logging in that states, "The first time you scan a QR code, you will need to sign in with your student's username and password. After that, you won't need to sign in again unless you log out or remain inactive for too long."
- Materials 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 in the Help Center link at the bottom of each unit. An e-letter provides online access to materials, resources, and activities to reinforce student learning and development, such as the parent letter in the Course Materials links.