Discovery Education Science Techbook for Texas Grade K

Discovery Education Science Techbook for Texas Grade K Executive Summary

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

Grade	TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
Grade K	100%	100%	100%	100%
Grade 1	100%	100%	100%	100%
Grade 2	In Progress	In Progress	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.

Discovery Education Science Techbook for Texas
Grade K

- 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.

Discovery Education Science Techbook for Texas
Grade K

Indicator 2.1

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

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

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content 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 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 plan and conduct classroom, laboratory, and field investigations, engage in problem-solving to make connections across disciplines, and develop an understanding of science concepts.

Evidence includes but is not limited to:

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

- The materials provide multiple opportunities to develop grade-level appropriate scientific and engineering practices, as outlined by the TEKS. The materials cover several TEKS within each core concept developed through the 5E Framework: Engage, Explore, Explain, Elaborate, and Evaluate. An Engage lesson introduces each concept, connecting it to real-world phenomena and specific science themes. Each concept includes multiple Explore lessons with hands-on activities, videos, literacy connections, and interactive activities, providing students opportunities to develop grade-level appropriate scientific and engineering practices. Each hands-on lesson includes a Phenomenon Check-In to help students connect their investigation to the real-world phenomenon presented at the beginning of the unit concept.

- For example, in Unit 1, Concept 1, students develop their ability to identify and record observable physical properties of objects and their ability to generate ways to classify objects. In the Engage lesson, students make connections, discuss key vocabulary, discuss a phenomenon image, and make a claim to revisit throughout the lessons. Then, students engage in four different Explore lessons in which they describe objects, sort objects, change properties of objects, and sort objects in different ways.
- The materials provide multiple opportunities to practice grade-level appropriate scientific and engineering practices outlined in the TEKS. For example, in Lesson 4, Changing Properties, students take materials, including clay or playdough, scissors, and a notebook and pen. Then, they record changes in the material after they roll it, cut it, and manipulate it. As students progress through the concept, they gather evidence to help explain the real-world phenomenon.
- The materials provide multiple opportunities for students to show mastery of grade-level appropriate scientific and engineering practices. For example, In Unit 2, Concept 1, Lesson 6, after students have learned about the properties of rocks, the section “What Did You Figure Out?” introduces an assessment in which students demonstrate their understanding of classifying rocks. In Lesson 7, students choose the best claim about how rocks are alike and different from a set provided in the book: “Rocks can have different sizes, shapes, colors, and textures,” “All rocks have the same size, shape, color, and texture” and “You cannot use color to classify rocks.” Students work in partners sharing evidence to support their claims. In Lesson 9, Exploring Rocks, students answer the following questions: “How can you describe rocks?” “How can you classify rocks?” and “How are rocks alike and different?” To respond to the questions, students may record their answers using drawings or words, perform their answers through songs, poems, or plays, or find the answers written in the classroom or through objects representing the answer.

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

- The materials identify overarching concepts using recurring themes and show how they connect within the materials. In the K–5 Program Guide, the materials identify seven recurring themes: patterns; cause and effect; scale, proportion or quantity; systems; energy and matter; structure and function; and stability and change.
- The materials provide multiple opportunities to use recurring themes in making connections between and within overarching concepts. Materials utilize the recurring theme of cause and effect. In Unit 1, Concept 2, Magnets, students explore how magnets cause some objects to move and how magnets' effects on objects depend on what the object is made of. In Unit 4, Plants and Animals, students learn what plants need to survive and think about cause-and-effect relationships as they reflect on questions such as, “How do plants survive if no one is taking care of them?” “What do humans need to survive?” “What are our basic needs?”
- Materials also utilize the recurring theme of patterns. For example, Unit 3, Sky and Weather, contains two core concepts: Objects in the Sky and Wind and Weather. Through Concept 1, Objects in the Sky, students describe the sun, moon, stars, and objects in the sky, such as clouds, and recognize the pattern of day and night repeating itself. In the following Concept, Sky, and Weather, students explore how weather changes daily and over seasons and describe the weather in the four seasons.

Discovery Education Science Techbook for Texas
Grade K

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

- The materials strategically develop students' content knowledge and skills appropriate for the concept and grade level as outlined in the TEKS. Grade-level content knowledge and skills are taught using Science and Engineering Processes (SEPs) and recurring themes so students can build and connect knowledge and apply it to new contexts. Materials for grades K-1 integrate SEPs through classroom and outdoor investigations for at least 80% of instructional time to support instruction in the science content standards. For example, in Unit 3, Sky and Weather, which lasts a total of 200 minutes, the time allotted to the specific phases of Engage, Explore, and Explain takes a total of 160 minutes (80% of the total time), complying with what TEA states for grades K-1.
- The materials are systematically designed to develop and build student skills and content knowledge using phenomena appropriate to the grade level outlined in the TEKS. For example, Unit 1, Objects, Magnets, and Light, is divided into three concepts which move from concrete knowledge and skills, starting with properties of objects, to more abstract skills, such as how magnets interact with various materials and how light travels through some objects and is blocked by others.

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 include sufficient opportunities for students to ask questions and plan and conduct investigations, explicitly included throughout some lessons of the 5E framework. Students are encouraged to generate questions and wonderings after being introduced to a real-world phenomenon in the Engage lesson. The materials prompt the teacher to return to their questions in the Phenomenon Check-ins within the Explore lessons. For example, in Unit 1, Concept 1, Lesson 1, the teacher asks students to share any questions about different objects and their properties. The educator notes state, "Record the questions on chart paper, the board, or another place where they can be easily reinforced…students can revisit these questions and answer them using the ideas they have learned and the evidence they have gathered throughout the concept." In Lesson 4, the students revisit the questions to see if they were answered. The educator notes state, "Have students discuss any questions that they can now answer, if applicable. Ask students if they have any questions about changing the object's properties to add to the chart." In addition to asking questions throughout each concept, across the course, in each concept, teachers expect students to carry out a field or classroom investigation through Hands-on and Interactive lesson types.
- The materials include sufficient opportunities for students to engage in problem-solving, make connections across disciplines, and develop an understanding of science concepts. For example, in grades K-2, students ask questions, plan and conduct investigations to answer questions and explain phenomena. For each core concept, students engage in a claim, evidence, and reasoning activity that connect new and old learning concepts. For example, in Unit 2 Earth Materials, Concept 1 Exploring Rocks, Lesson 7, now that students know more about the properties of rocks, they choose the best claim about how rocks are alike and different from a set which includes: "Rocks can have different sizes, shapes, colors, and textures; all rocks have the same

size, shape, color, and texture; and you cannot use color to classify rocks." Students work in partners sharing evidence to support their claims.

Discovery Education Science Techbook for Texas
Grade K

Indicator 2.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- The materials use phenomena as a central anchor that drives student learning across grade-level content in each discipline (earth/space, life, physical science). The Engage lesson introduces real-world phenomena within each unit concept and asks students to make connections and claims about them. For example, in Unit 4, Plants and Animals, students are prompted to think about the problem and collect data to examine the facts after watching a video of a dying plant. Students make a claim regarding plants' needs. In one of the Explore lessons, the content includes a phenomena check-in to help students connect their investigations to phenomena. During the Explain stage, students synthesize and reflect on how their thinking about real-world phenomena has changed. In the Program Guide, the publisher states, "In grades K-2, students are not expected to create their own explanation, but to discuss with the class which explanation they can support with the evidence they collected in Explore."
- The materials embed thought-provoking phenomena and engineering problems that require nuanced and appropriate grade-level explanations. Materials provide opportunities for students to develop, evaluate, and revise their thinking as they figure out phenomena. For example, in Unit 4, Concept 1, Lesson 2, What Plants Need, students discover what plants need to live by

growing two plants and covering one with plastic. Students make predictions and then gather information each day for seven days. On day seven, students conclude what plants need to live and discuss what they would do if they had to build a garden. Because students might believe that the plant with the bag over it is receiving no fresh air at all, the teacher is prompted to remind students that, though the bag is shut, the air is inside the bag. The educator notes state, "Students should come away from the investigation with the idea that fresh air is necessary for a plant to live, grow, and remain healthy." In Lesson 7, How Do Plants Get Their Need Met, students use the CER protocol to present their scientific explanations about plants' needs.

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

- The materials provide opportunities to leverage students' prior knowledge and experiences related to phenomena and engineering problems. For example, in Unit 1, Objects, Magnets, and Light, the materials elicit prior knowledge by showing a plastic refrigerator magnet and asking students what it is. Then, the teacher holds a small metal object attracted to magnets. Using prior knowledge, students predict what will happen when the magnet is near the metal objects.
- The materials allow different entry points to learning phenomena and solving problems. For example, in Unit 3, Concept 2, Wind and Weather, students experience the phenomena through various means: images (Lesson 1), hands-on activities (Lessons 2 and 6), video (Lesson 3), interactives (Lesson 4), and reading (Lesson 5).
- The materials guide teachers and students to address potential areas of misunderstanding. In Unit 2, Concept 1, Lesson 2, Rock Classification, as students engage in a hands-on investigation, the educator notes include a section on misconceptions that details how students may think that all rocks are the same or have the same origins. The teacher is asked to explain how each rock type forms differently. The notes add, "Explain that they will learn more about the three types of rocks at a later time. Consider showing students examples of rocks from each category if samples are available."

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

- Each unit provides a section under Unit Resources called Background Knowledge. This section includes student and teacher background knowledge on each Unit. For example, in Unit 3, Concept 1, Objects in the Sky, the teacher's background explains how the Earth rotates as it travels around the sun and details how we experience day and night in a 24-hour pattern. As for student background, the document mentions that "...before starting this concept, students should be able to name basic shapes, colors, and repeating patterns. Students may have a difficult time with the abstract concept of time, especially the concept that day and night happen because of Earth's rotation on its axis in relation to the sun."
- The materials clearly outline student learning goals behind each phenomenon. For example, in Concept 1, the objective states, "Students will make a claim about how to describe objects and observe and use their senses to gather data about the properties of objects."

Discovery Education Science Techbook for Texas
Grade K

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.

- The materials present content that builds in complexity within and across units and grade levels. The materials include a K–5 Program Navigation Guide and a Vertical Alignment Guide which show how content builds complexity across units and grade levels. For example, the Vertical Alignment document found on the homepage shows the main four units of study of all grade levels as Matter and its Properties; Force, Motion, and Energy; Earth and Space Science; and Organisms and Environment, as well as the specific topics included in each. For example, the Organisms and Environment unit in Kinder covers the concept of Plants and Animals, focusing on the study of plants' needs and growth and animals' needs, while in Grade 1 materials extend knowledge of this concept in Units 3 and 4, covering living and nonliving things; habitats; and animals needs, structures, and growth. In Kindergarten, students learn about the properties of objects. Then, in Grade 1, they are classifying objects, and by Grade 2, students are learning about the material properties of objects.
- The materials connect new learning goals to previous and future learning within and across grade levels. For example, in the Study of Matter and Its Properties, Kindergarten begins with the classifying of objects. First grade moves on to the physical properties of objects, heating and

cooling, and the study of a system and its parts. The second-grade curriculum focuses on changing the physical properties of objects and the properties of solids and liquids. In the 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 are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding.

- The materials include guiding documents to explain a progression of concrete and then representational before abstract reasoning when presenting concepts that allow for increasingly deeper conceptual understanding. The Program Guide states, "Concepts within each unit are structured with lessons that follow the 5E Framework: Engage, Explore, Explain, Elaborate, and Evaluate. Units, concepts, and lessons are designed to pique student interest and scaffold acquisition of specific scientific ideas as students learn about the world in which they live."
- Concepts within a unit also reflect a progression from concrete to abstract reasoning. For example, in Kinder, Unit 1, Objects, Magnets, and Light, students start with the concrete concept of the properties of objects. The second concept is somewhat more abstract, dealing with magnets and their interaction with different materials. Finally, the third concept introduces light and shadows. Additionally, the progression of concrete before abstract reasoning is present within each unit concept. For example, in Unit 1, Concept 2, Lesson 2, Magnet Experiment Centers, students explore magnets and objects that are attracted to magnets. By the end of the 5E framework, in Lesson 8, Magnets with Jobs, students are identifying magnets around them and how a mechanical engineer uses magnets.
- Materials ensure students experience phenomena before utilizing models as a tool for reasoning. For example, in Unit 2, Concept 1, Lesson 1, How Are Rocks Alike and Different?, the Real-World Phenomenon section prompts students to observe a picture of a rock collection and compare it to rocks in the schoolyard. Students then make a claim about how rocks are alike and different. In Lesson 2, Rock Classification, students use a rock kit and hand lens to classify rocks by observable properties.
- The materials sequence instruction in a way that activates or builds prior knowledge before explicit teaching occurs that allows for increasingly deeper conceptual understanding. For example, in Unit 3, Concept 2, Wind and Weather, before explicitly learning about the seasons and weather changes, students build on prior knowledge by sharing what their favorite activities are for the summer and for winter. Students decide if the activities they do are the same or if they are different, and then they review what they learned previously about the weather in different seasons. Materials also utilize visual aids and hands-on learning experiences as scaffolds to build an understanding of abstract concepts. For example, in Unit 2, Concept 1, Lesson 2, Rock Classification, there is a section titled SOS Strategy, Get Venn-y With It, that utilizes a Venn diagram to enhance students' experiences by comparing and contrasting their observations about rocks.

Discovery Education Science Techbook for Texas
Grade K

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

- The materials clearly present grade-specific core concepts, recurring themes and concepts, and science and engineering practices. For example, materials use the 5E (Engage, Explore, Explain, Elaborate, Evaluate) instructional model for sequencing science instruction. During the Engage phase, materials pose a driving question, present a real-world phenomenon, and have students make an early claim which they will adjust as the concept is developed. During the Explore phase, students engage in multiple activities, including hands-on investigations and centers, videos, interactive practices, and text analysis. During the Explain phase, students construct explanations based on the evidence of the phenomena. In the following Elaborate phase, materials connect the concept to the real world, using a text focused on STEM careers. During the final Evaluate phase, materials assess knowledge acquired and provide choices for students to present their understanding.
- For example, in Kinder, in Unit 3, Sky and Weather, and Concept 2, Wind and Weather, during the Engage lesson, students activate prior knowledge by observing through the window and discussing the weather that day. During the Explore phase, students conduct investigations through videos, texts, and hands-on experiences like making a pinwheel to see the effects of wind. In the Explain phase, students describe weather changes and explain how seasons affect the weather. In the Elaborate phase, students make connections to the real world by describing the job of a meteorologist. Finally, in the Evaluate phase, students demonstrate their knowledge by responding to questions like “How can weather change day to day?” and “How can weather change over seasons?
- The materials accurately present core concepts, recurring themes and concepts, and science and engineering practices (SEPs). Across lessons, units, and grade levels, materials are free from scientific inaccuracies. Materials present scientific content that is current and reflects the most current and widely accepted explanations. For example, the Unit Resources section contains background information with facts that they need to know for a better understanding of the concepts so that they are prepared to answer any questions with accuracy.

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

- The materials include specific learning targets for each grade level. For example, materials provide unit objectives for each unit and student learning objectives for each lesson. Every unit contains a Unit Planner that provides an overview of the concepts and the grade-level standards. The Unit Planner also provides the overall goal for the unit and the connections between concepts. Each lesson provides the overall objectives and grade-level learning outcomes for the lesson. Each lesson also provides “I can” statements for clarity of objectives in student-friendly language. For example, in Unit 1, Concept 1, Properties of Objects, the teacher learning objectives state, “By the end of the concept, students will make a claim about how to describe and sort objects based on their physical properties, describe and sort objects based on their properties, identify and record the properties of objects, recognize that the properties of objects can change, describe how to sort objects based on their physical properties, make a claim about how we can describe and sort objects, classify objects based on similar physical properties, and construct a scientific explanation that best explains how we can describe the properties of objects.”

Discovery Education Science Techbook for Texas
Grade K

- The materials define the boundaries of the main concepts that students must master for the grade level or course. For example, in Unit 3, Sky and Weather, Concept 2, Wind and Weather, the Background Knowledge document recommends that “In order to minimize confusion, only use the word Earth to refer to our planet. Avoid using earth as a synonym for land. This distinction will be made in a higher grade.”

Discovery Education Science Techbook for Texas
Grade K

Indicator 3.2

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

1	Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices.	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 include guiding documents that support teachers in understanding how new learning connects to previous and future learning across grade levels, such as the K-5 Program Navigation and Vertical Alignment Guide. These documents provide a broad overview of how the learning connects throughout the grades. For example, in the Vertical Alignment guide, under the core concept of Matter and Its Properties, Kindergarten lists: Magnets and Properties of Objects; Grade 1 lists: Classifying Objects; and Grade 2 lists: Material Properties.
- The supporting document "K–12 Scientific and Engineering Practices and Recurring Themes and Concepts Vertical Alignment" presents a comprehensive table that showcases which specific skills and standards students should have mastered in previous grades and how learning will progress in the subsequent grades. This document includes tabs categorized by scientific and engineering practices (SEPs) and recurring themes and concepts (RTCs), biology, Earth and space, and chemistry.
- For example, in the SEPs and RTCs tab, Kindergarten standard K.1.A (ask questions and define problems based on observations or information from text, phenomena, models, or

investigations) is shown as covered in Units 1 through 4. In the rest of the grade levels and the Biology course, the correlating standard is covered in all units as well. In the Earth and space tab, teachers and administrators can see how a topic is covered through the grade levels. Students first learn about seasons in Kindergarten in Unit 3, Concept 2, Wind and Weather, in which they observe and describe changes over seasons. In Grade 1, Unit 2, Concept 3, Patterns in Nature, students are expected to describe and predict the patterns of seasons of the year such as order of occurrence and changes in nature. Then, in Grade 4, students encounter seasons again in Unit 3, Concept 1, Moon Phases and Seasons, in which students collect and analyze data to identify sequences and predict patterns of change in seasons such as changes in temperature and length of daylight.

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 include information for teachers about common grade-level misconceptions that are barriers to students' conceptual development. For example, in Unit 1, Concept 1, Lesson 2, educator notes include a section on misconceptions which states, "Students may have seen the sun, moon, and stars appear to move across the sky. Students might believe that objects in the sky move across the sky on their own. Explain to students that Earth rotates, or spins, each day. This makes it seem as though objects in the sky are moving across the sky when really it is Earth that is moving. They may have also seen the moon in the daytime sky. This is also due to Earth spinning as well as the moon orbiting Earth." In Lesson 4, the misconceptions section states, "Students may believe that the moon changes shape because on different days it looks different in the night sky. Explain to students that the moon does not make its own light. Point out that the moon is always round but how much of it we can see changes. Students should understand that the moon is always the same shape but that different parts of it are lit up by the sun at different times."
- Each unit contains a document called background knowledge under unit resources which provides information for teachers and students. For example, in Unit 3, Concept 1, Objects in the Sky, the teacher's background explains that "The sun is a star that gives off light and heat. While Earth travels around the sun, it also rotates, or spins, on its axis, so one half of Earth faces the sun while the other half of Earth faces away from the sun. The part of Earth that faces the sun experiences daylight. The part of Earth that faces away from the sun is dark. The dark side experiences night. As Earth spins on its axis every 24 hours, each part of Earth follows a pattern of day and night."

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

- Materials provide a purpose or rationale for the instructional design of the program. Materials explain why materials are designed the way they are. The K–5 Program Guide states, "The program is organized into standards-aligned cohesive units that can be arranged in various sequences to meet your district's needs. Each unit includes concepts that are strategically bundled, ensuring students will uncover all core scientific content. Concepts within each unit are structured with lessons that follow the 5E Framework: Engage, Explore, Explain, Elaborate, and Evaluate. Units, concepts, and lessons are designed to pique student interest and scaffold acquisition of specific scientific ideas as students learn about the world in which they live."

- The K–5 Program Guide also explains that each concept is "...organized around the research-backed, phenomenon-based storyline learning model." The phenomenon-based learning model encourages students to collaborate and investigate to explain the phenomena. Materials add, "Units, concepts, and lessons are designed to pique student interest and scaffold acquisition of specific scientific ideas as students learn about the world in which they live. 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."

Discovery Education Science Techbook for Texas
Grade K

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 a definition of sensemaking and identify specific sensemaking behaviors of students. In the K–5 Program Guide, the materials identify Student Sensemaking as a foundational aspect of using Real-World Phenomena to support student learning. According to the materials, "When phenomena are carefully selected to be relevant to students, the phenomena spark students' curiosity and provide a reason for them to engage in the learning as they make sense of how and why the phenomena occur. Students build their understanding of science ideas through the process of developing and revising explanations."
- Materials consistently provide learning activities that support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. For example, for Unit 1, Concept 3, Light, students think and act as scientists throughout the different lessons when experimenting with tissue-paper made pictures that they place on a window. They read a

passage about sources of light, watch a video about shadows, and then act as scientists and engineers when they construct paper puppets to play with the shadows. To evaluate their learning, students write or draw conclusions based on evidence they obtained throughout the unit. In Unit 3, Concept 1, Lesson 2, Night and Day, students draw and record their predictions before a hands-on activity. Later in the lesson, students investigate, discuss, compare, collect, and record data. In Lesson 6, Identifying Objects in the Sky, students read, stopping to discuss the images and other key ideas and details.

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

- Opportunities for students to engage with scientific texts include activities, such as pre-reading and vocabulary, to help them develop an understanding of concepts. For example, in Unit 4, Concept 1, Lesson 4, Parts of a Plant, the lesson includes activities for before, during, and after reading. The materials suggest setting a purpose before reading. During reading, students listen for the names of plant parts and draw in their notebooks a picture of each plant part that they hear named. The teacher pauses the reading and checks the students' understanding of the terms root, leaves, stem, flower, and fruit. The materials include the vocabulary at the bottom of the lesson with audio and a picture. Also, under Unit Resources, the materials provide printable flashcards of the vocabulary studied throughout the whole unit with pictures and words on one side and definitions in English and Spanish on the other side.
- Materials provide multiple opportunities for students to engage with scientific texts to gather evidence and develop an understanding of concepts. For example, in every unit, there is at least one interactive lab that integrates scientific text with scientific investigations that engage students while they learn. In Unit 2, Concept 2, Lesson 3, How Does Your Garden Grow?, students work in a virtual lab pretending they are agronomists and compete to see who can grow the largest vegetables by adjusting the type of soil, amount of sunlight, and amount of water. After each trial, they can observe how their plants grow and write down their observations in a virtual notebook or access the data log generated by the program so they can reach conclusions.

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

- Materials provide opportunities for students to communicate thinking on scientific concepts in written and graphic modes. For example, in every unit, the Evaluate lesson asks students to summarize their learning by answering three questions in different ways. For example, in Unit 2, Concept 1, Lesson 9, Exploring Rocks, students answer the questions "How can you describe rocks?" "How can you classify rocks?" and "How are rocks alike and different?" To respond to the questions, students may record their answers; perform their answers through songs, poems, or plays; or find the answers written in the classroom or through objects in the classroom that represent the answer.
- For example, during every hands-on investigation and every virtual lab, students fill out a graphic organizer to log in their observations and reach conclusions. For example, in Unit 2, Concept 1, Lesson 2, Rock Classification, students fill out a three-column graphic organizer

where they sort rocks into groups based on their patterns and record the properties of each group.

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 provide authentic student engagement and perseverance of concepts through productive struggle while acting as scientists and engineers. For example, in Unit 1, Concept 3, Lesson 3, Letting Light Through, students experiment with different materials to see which ones let the light through better. The experiment keeps students engaged while acting as scientists testing all the materials with a flashlight in a dark room to see which ones let the light through. Students record their observations and discuss their findings. In Unit 3, when studying weather, students observe the weather for over a week and record the information in a journal. At the end of the week, students discuss what they figured out based on their observations.
- Materials create transfer opportunities for students to take what they have learned and use it flexibly in new situations. For example, in Unit 1, Concept 3, Lesson 3, Letting Light Through, after experimenting with different materials to see which ones let light through, students are questioned about what material would be best to cover a classroom window that lets some, but not all, light through.
- Materials support students as “practitioners” while they are figuring out (sensemaking) and productively struggling. Materials prioritize students making evidence-based claims to construct explanations of how and why the phenomena or problem occurs. For example, in Unit 1, Concept 1, during the Explore lesson, students use an interactive online virtual lab to explore how a magnet interacts with various materials and how magnets can be used to push or pull some objects without touching them. Students use the engineering practice of trial and error to complete a circuit and solve the problem of a broken robot. In the second part of the interactive, students learn what magnets can do and identify objects that magnets pull. In the final part of the interactive, students use knowledge of magnetic poles to find the solution to the problem of a locked door. After the interactive, students Turn and Talk with a partner and discuss their thinking about the following questions: “Which objects did the magnets move?” “When do magnets push each other?” “How could you use a magnet and a string to sort a pile of objects?” “Why is it helpful to use a model magnet?” and “How could you make the model of the magnet better?”
- Materials prioritize students making evidence-based claims to construct scientific explanations. In every Explain lesson for each concept, students make a claim and support it with evidence. Students then present their scientific explanations in a format that works best for the classroom (e.g., oral presentations, writing, or drawing).

Discovery Education Science Techbook for Texas
Grade K

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 to 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 to phenomena and/or solutions to problems using evidence acquired from learning experiences.

Evidence includes but is not limited to:

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

- Materials provide opportunities for students to develop how to use evidence to support their hypotheses and claims. For example, in Unit 2, Concept 2, Lesson 3, How Does Your Garden Grow? students first learn how to record data as they see plants growing under different conditions. Later on in the lesson, the students respond to questions based on the evidence they collected: "Why did you need to test three different types of soil when growing a tomato plant?" and "What combination of soil and water makes the largest crop of tomatoes?" Further in the unit; in Lesson 7; How Can We Use Water, Rocks, and Soil?; students provide evidence for the claim "Water, rocks, and soil help us to grow plants and make buildings." To do this, the materials explicitly instruct the teacher to guide students in reviewing previous lessons, videos, and activities. The script states, "With your partner, share evidence from the lessons that supports your claim. Then, discuss the reasons (how or why) the evidence supports the claim."
- Materials specifically prompt students to use evidence when supporting their hypothesis and claims. For example, in Unit 1, Concept 1, Lesson 6, How Can We Describe and Sort Objects?, students are presented with three claims. Next, in a section labeled "What Is the Evidence?," students select which claim they think is best and support the claim with evidence gathered

from previous lessons. The educator notes state, “Have students select which claim they think is best, and ask them to support the claim with evidence they gathered from previous lessons. Have students write or draw their evidence in the space provided in the student materials.” Students may provide verbal or written responses when sharing with their partners. Then, in a section labeled “Give a Reason,” students turn and talk to a partner about their evidence, explaining how and why the evidence supports the claim they chose.

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

- Materials include opportunities to develop and use vocabulary after having a concrete or firsthand experience to which they can contextualize new terms. For example, in Unit 2, Concept 1, Lesson 1, How Are Rocks Alike and Different?, the teacher introduces the word *properties*. Subsequently, students reflect and discuss the questions: “What properties of a rock can you tell by looking at it?” and “Do all rocks have the same properties?” In Lesson 2, Rock Classification, students engage in an investigation classifying rocks by the observable properties of size, shape, color, and/or texture. The materials guide the teacher to check for student understanding of the key vocabulary terms *properties* and *observe* and prompt them to continue using them as they engage with the content during the lesson. In Lesson 3, students watch a video and reflect on the question, “What are the properties that make rocks good for building?” The section titled Vocabulary Check-In is included throughout the lessons, asking teachers to check students’ understanding of the key vocabulary terms and prompt them to continue using them as they engage with the content in the lesson after students have built conceptual knowledge.
- Materials provide opportunities for students to apply scientific vocabulary within context. For example, in Unit 4, Concept 3, Lesson 3, Organism Needs, students learn the word *depend*. First, they find it in a slideshow that introduces the interactive activity, and they can click on the word to access the glossary. Then, they find the word *depend* on several of the following slides and in the interactive feature. In the final activity of the interactive, the instructions say, “Circle the shelters that animals may depend on, and place a line over the food that animals depend on.” Students also get to answer questions that the teacher asks using the word: “What food does a parrot depend on in its habitat?” and “What did you learn about what animals need and depend on as you explored the interactive?”
- Materials present scientific vocabulary using multiple representations. For example, key vocabulary presented in the Vocabulary tab (Next to the lessons tab), at the end of a lesson, and in the glossary is linked to multiple representations. Each word has a definition and a sentence using the word in context. A picture, a real-life video, and an animation are also provided. The glossary also has an immersive reader feature that allows the students to hear all the provided text read aloud to them.

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 develop how to engage in the practice of argumentation and discourse. In every concept, students begin the Engage lesson by interacting with a real-world phenomenon and making a claim based on a question. After students record their answers, they share their ideas with a small group. The expectation is for students to continuously gather evidence to help explain the real-world phenomenon. Materials state, “It is acceptable for the claim to be incorrect at this point. Resist the urge to correct student

responses at this initial stage of the lesson." Students revisit their claim and revise it throughout the Explore lessons and the Explain lesson. For example, in Unit 3, Concept 1, Lesson 1, What Can You Observe About The Sky? students observe an image where the sun is low on the horizon. Students turn and talk to share what they notice. Educator notes state, "Encourage students to think with others by saying, Who can add onto the idea that [student name] is building?" Next, students make a claim based on the question "What can you observe about the sky?" The script states, "Allow students to quietly think about their answer before communicating their initial ideas. Next, allow students time to share their ideas with their small group." In Lesson 7, students rewatch the video from the Engage lesson and work together to describe what objects they see in the sky during the day and at night. In small groups, students reflect on how their initial understanding of the sun and moon has changed after completing the lessons on this concept. Students review what they learned in each lesson and discuss the videos and activities they interacted with. Students work in pairs to answer the question, "What can you observe about the sky?" The materials provide three possible answers, and the students must choose the one which answers the question best. While discussing with their partners, the teacher says, "With your partner, share evidence from the lessons that support your claim."

- Materials provide opportunities for students to develop how to engage in the practice of scientific discourse. Materials use various teaching strategies, including think-pair-share, clarifying students' ideas, student-to-student discussions, and encouraging student-to-student discussion. For example, in Unit 4, Concept 3, Lesson 2, Animal Needs, after students have conducted a hands-on investigation and collected evidence, they share their findings in small groups. The teacher guides student scientific discourse and informally assesses by utilizing phrases such as, "So you are saying that…" or "I think I heard you say…"
- Materials integrate argumentation and discourse within stages of the learning cycle. In every concept, students begin the Engage lesson by interacting with a real-world phenomenon and making a claim based on a question. After completing the lessons in a concept, students are guided to reflect on how their initial understanding of the concept topic and the real-world phenomenon may have changed. For example, in Unit 4, Concept 1, Plants, students begin the unit by predicting how plants meet their needs. Throughout the concept, students collect data through hands-on activities, interactives, videos, and scientific text. Materials guide the teacher to facilitate a brief class discussion for groups to describe their understanding of the investigations, share what they figured out with one another, and ask any further questions that they may have. In the Explain lesson, students revisit their initial claims. They use the evidence collected to revise their initial claims and present their scientific explanations in the best format for the classroom (for example, oral presentations, writing, or drawing). They are asked to include reasons why they chose the claim and to explain how and why the evidence supports their claim.

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.

- Materials provide instruction for how to construct and present a verbal or written argument. For example, in the Explain lesson, the materials offer three possible answers to a question, and students need to select the claim they think is best based on the data they collected throughout the previous lessons. The teacher invites students to share what they have explored about the Supporting Science Theme in the concept. Materials instruct the teacher to accept all ideas and

help students to connect their learning across all disciplines collaboratively. After they have chosen their claim, students write or draw their evidence. Students also support their claim with reasons (how and why) the evidence supports the claim they have chosen. At the end of the lesson, students put together a presentation combining all they have learned about this concept. They may present it orally, in writing, or in drawings. The teacher may allow students to choose how they wish to communicate their scientific explanations.

- Materials provide opportunities for students to justify explanations of phenomena and solutions to problems using written and verbal arguments. For example, in Unit 1, Concept 1, Lesson 4, Changing Properties, students conduct an investigation to explore how the properties of objects can change, and they record how observable features can change. Students then craft an argument. Materials first direct students to consider their data and then answer the question, “What did you learn about changing an object’s properties?” Students answer the question with a claim. Materials then direct students to use collected data to explain why their claim is true. Students give specific examples of how the properties of clay change and the properties of paper changed. Students provide verbal or written responses. Students present their arguments in small groups while asking each other questions to clarify their responses.

Discovery Education Science Techbook for Texas
Grade K

Indicator 5.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Materials provide teachers with possible student responses to questions and tasks. For example, in Unit 2, Concept 1, Lesson 2, Rock Classification, students make predictions. To support them, the teacher asks, "What can you learn about a rock by looking at it?" The materials provide the sample response: "I can learn about its size, shape, and color." The teacher also asks, "What can you learn about a rock by touching it?" The sample response provided is "I can learn how the rock feels (texture)." In some responses to tasks, instead of providing textual sample responses, the materials indicate what the student answers should include. For example, when the teacher instructs the students to group the rocks based on shared properties and record the properties each group has in common, the materials state, "Student responses will vary. Students should use the words size, shape, color, and/or texture to describe each group of rocks."
- Materials provide teacher responses to possible students' responses, including how to build on students' thinking. For example, in Unit 4, Concept 1, Lesson 3, Getting to Know Plants, while students are identifying what a seed needs to sprout, the materials instruct the teacher to ask students the following questions to activate background knowledge and spark curiosity: "What do plants need to grow?" and "What does a seed need to turn into a plant?"

- Throughout the Engage lessons, materials provide questions to help build students' thinking. For example, in Unit 3, Concept 2, Wind and Weather, the teacher first asks students to turn and talk to a partner to share what they noticed and what they wondered about the real-world phenomenon video. Then, the materials prompt the teacher to encourage students to think with others by asking: "Would anyone like to add to the idea that [student name] is building?" The guidance continues with the question "Are your observations about weather always the same?" Throughout other lessons, the teacher also helps students deepen their thinking by clarifying their responses to a question. For example, after asking "How do plants get their needs met?" the teacher listens to responses and clarifies using the prompts: "So you are saying that …" and "I think I heard you say …"

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

- Materials provide embedded supports for the teacher in how to introduce and scaffold students' development of scientific vocabulary. Materials provide teachers with Unit Resources which include an overview of the vocabulary students should be able to name and/or identify. For example in Unit 4, Plants and Animals, the scientific vocabulary for the first concept, Plants, includes *air*, *flower*, *fruit*, *leaves*, *needs*, *plant*, *root*, and *stem*. The second concept, Plant Life Cycles, includes the vocabulary terms *flower*, *fruit*, *life cycle*, *plant*, *seed*, and *seedling*. The third concept in the unit, Animals, includes the key terms *air*, *depend*, *environment*, *food*, *shelter*, *space*, *structure*, and *water*. The Unit Planner also provides Key Vocabulary Strategies and Academic Vocabulary Strategies.
- Materials also provide detailed supports for the teacher in how to introduce and scaffold students' development of scientific vocabulary within the lessons. For example, in Unit 1, Concept 2, Magnets, the unit overview identifies the terms magnet, pull, and push as most important for students to understand to grasp key ideas in the unit. In Lesson 1, What Can Magnets Do?, the teacher introduces the key vocabulary word *magnet*. The teacher starts by showing the students a plastic refrigerator magnet and asking them if they know what the object is. The teacher holds a nail or other small metal object attracted to magnets in their palm face-up and invites volunteers to predict what will happen if they move the magnet near their palm. Then, the teacher moves the magnet, ensuring that it comes close enough to attract the object in the palm. The teacher scaffolds the learning by asking "Why did the object move?" "Would this happen with any object?" "Why or why not?" After students discuss their answers with their partners, the teacher discusses the key vocabulary with students. Materials then suggest creating a class anchor chart with an image for each word.
- Materials provide guidance for the teacher on how to support students' use of scientific vocabulary in context. For example, in Unit, Concept 1, Lesson 4, Parts of a Plant, before reading a text students listen for the names of plant parts and draw in their notebooks a picture of each plant part that they hear named. During reading, the teacher pauses the reading to ask students what parts of the plant they have heard and checks the students' understanding of the key terms (root, leaves, stem, flower, and fruit). The teacher then encourages students to keep using the vocabulary words throughout the lesson. After reading, materials present a turn and talk for students to discuss questions that allow them to use the vocabulary in context: "What are the parts of a plant?" and "Why do plants need their parts?" Throughout the lessons, after students have built a conceptual understanding of key vocabulary, a section titled Vocabulary

Check-In reminds the teacher to prompt students to continue using the key terms as they engage with the content.

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

- Materials provide teacher questions for supporting student discourse and the use of evidence in constructing written and verbal claims. For example, in Unit 2, Concept 2, Lesson 2, Observing Rocks, Water, and Soil; materials provide teachers with simple questions to ask during a whole class discussion such as “What will each material look like up close?” During the investigation, students draw or write what they see and a place where they can find each material. Materials recommend to encourage students to use both words and drawings when creating a claim. The educator notes also prompt the teacher to encourage students to share their ideas in small groups while asking each other questions for clarification. In Unit 4, Concept 1, Lesson 1, What Plants Need, as students investigate what happens to two plants grown under different conditions, the materials provide questions for the teacher to help students use evidence to construct claims: “What does the plant need to start growing?” “What other needs does the plant have?” At the end of the lesson, students respond to the following questions based on the evidence they collected: “If you had to build a garden, would you cover the plants or let them have fresh air? Why?”
- Materials provide guidance that teachers can use to provide feedback to students while engaging in discourse. For example, all the Evaluate lessons of each concept include three questions that students answer in any format they choose. Materials provide suggested answers and specify what information the answers must include, so the teacher can assess the accuracy of the answer and how to provide feedback. For example, in Unit 3, Concept 2, Lesson 10, Wind and Weather, the first question is “How can weather change day to day?” Materials indicate that answers should mention ways that weather can change from day to day, such as how the temperature can change from one day to the next or how one day it can be sunny and the next day it can be cloudy or rainy. Additionally, during small group discussions, materials prompt the teacher to rotate around the room to informally assess student understanding, using the phrases “So you are saying that …” and “I think I heard you say …”
- Materials provide teacher guidance on supporting students in using evidence to support scientific claims. For example, in Unit 2, Concept 2, Exploring Rocks, the teacher guide suggests organizing student-generated questions on a Student Question Board to set the stage for the investigations they will engage in throughout the concept. Later in the concept, students can revisit these questions and answer them using the science ideas they have learned and the evidence they have gathered throughout the concept.

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

- Materials provide teacher support and guidance to engage students’ thinking in various modes of communication throughout the year. In every concept, different lessons consistently include various modes of communication. For example, in every Explain lesson students first write or draw evidence in response to a claim. Then, they share the evidence with a partner. Next, students turn and talk with a partner and discuss the reasons (how or why) the evidence supports the claim. Afterward, students construct and present their scientific explanations in the

format that works best for them (e.g., oral presentations, writing, or drawing). In the Evaluate lesson of the learning cycle, students can share their learning by recording it, performing it, or finding it. The teacher guide gives examples of what each of these modes could look like. For example, in Unit 1, Concept 2, Magnets, students answer the question "How can a magnet push something without touching it?" Materials suggest students can write the answer, students can draw a picture of a magnet pushing another magnet without touching it, students can say the answer out loud, students can use two magnets to demonstrate how a magnet can push something without touching it, or students can find examples in informational texts or online of a magnet pushing something without touching it.

- Materials provide teacher support for facilitating the sharing of students' finding solutions. Materials include feedback tips and examples teachers can use to support students throughout the learning cycle. Within the Explore phase of each module, the educator notes include feedback strategies teachers can use to help students share their learning. For instance, in Unit 4, Concept 1, Lesson 2, What Plants Need, students investigate plants' need for air. When students share their models, materials direct the teacher to ask probing questions to help students make sense of what plants need, including "What did you learn about what plants need to live and grow?" Materials also state that teachers can encourage student-to-student interaction after each student shares their ideas in small groups while asking each other questions for clarification of their drawings.

Discovery Education Science Techbook for Texas
Grade K

Indicator 6.1

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

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

Meets | Score 2/2

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

Materials include a range of diagnostic, formative, and summative assessments 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 informal diagnostic assessments. In the Engage lesson of every unit, materials include assessments that allow teachers to know what skills from previous grades students have mastered. For example, in Unit 1, Concept 1, Lesson 1, How Can We Describe and Sort Objects?, the materials instruct the teacher to “elicit students’ prior knowledge and experiences with the image” by asking what objects or supplies they use in their classroom to make crafts. Then, the teacher asks students, “What do you already know about the properties of objects?” Students may provide verbal or written responses.
- Materials include formative assessments in various formats to measure student learning and determine the next steps for instruction. Informal formative assessments are frequent and varied across the entire science program. Phenomenon-Check ins and class discussions are included throughout the lessons. For example, in Unit 1, Concept 1, Lesson 2, Describing Objects, the Phenomenon Check-In shows students an image to remind them of their connection to the phenomenon. The teacher asks, "How can we describe and sort objects?" The educator notes state, “Next, encourage students to share their ideas in small groups while asking each other questions for clarification.” Materials prompt the teacher to circulate the

classroom to informally assess student understanding during the phenomenon check-in and Explore phase. Targeted discussion questions are located in the teacher support materials to help check student thinking during each lesson.

- To formally assess understanding of a lesson, materials include a section titled "What did you figure out?" at the end of the Explore lessons, following a hands-on activity, interactive activities, videos, and literacy connections. In this section, students engage in digital or print assessments directly tied to the standards of the lesson to demonstrate their understanding of the standard. The data from this online assessment goes into an online report that the teacher can access to drive her instruction. For instance, in Unit 1, Concept 3, Lesson 5, Making Shadow Puppets, in the "What did you figure out?" section, students answer "How did you make a shadow with your puppet?" and click one of three answer choices: "A: I made a shadow when I went outside in the sun. B: I made a shadow by coloring it on the white surface. C: I made a shadow by putting my puppet in front of a beam of light." Afterward, the materials suggest additional questions including "How would the shadow be different if the puppet were made of material that only blocks some light and lets some light through? How would the shadow be different if the puppet were made of material that lets most of the light through?"
- Materials include summative assessments in a variety of formats. In the Explain lesson of the framework, students use what they have learned throughout the Engage and Explore lessons to construct and present a scientific claim using evidence and reasoning. In the Evaluate lesson, students show what they learned throughout the concept and respond to the questions provided in a format of their choice, which can be in writing, in oral form, or through performance. For example, in Unit 1 Objects, Magnets, and Light, Concept 3 Light, Lesson 9 Light (Evaluate), students answer the following questions: "How do we see objects? How do different amounts of light affect the appearance of objects? How is a shadow created?" Suggested ideas for how students can complete the assessment are provided to teachers, along with targeted guidance for evaluating student responses.
- It should be noted that the K–2 materials offer the Assessment Builder online resource; however, the tool generates the message "No Results" when grade K standards or concepts are selected.

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

- Materials formally and informally assess all student expectations by grade level as outlined in the TEKS. In the Science Techbook for Texas, there is a button labeled TEKS on the top right corner that outlines the alignment of all the grade-level TEKS and in which each concept is covered. For example the standard K.6A, "Identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects," is taught and assessed in Concept 1.1, Properties of Objects. Materials directly link to the concept and lessons based on this standard within the TEKS resource.
- Materials indicate which student expectations are being taught and assessed. In the Table of Contents, materials identify every TEKS covered in each lesson. Also, under Unit Resources, there is a link to "Standards Alignment" that shows a chart indicating which Student Expectations are covered in each concept.
- Materials indicate which student expectations are assessed. Materials provide the TEKS correlation for each assessment item and the answer keys for every assessment. For example, the Evaluate session of every concept within a unit provides a question for teachers to ask that

is tied to the concept objectives. This assessment also provides the TEKS correlated with each concept and possible answers for the students. For example, in Unit 1, Concept 1, the Teacher's Guide shows that TEKS K.6A and TEKS K.5B will be assessed in the Evaluate lesson.

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

- Materials include assessments that require students to integrate knowledge and science and engineering practices with recurrent themes appropriate to the student expectation being assessed. For example, in Unit 1, Concept 2, Magnets, students investigate how a magnet interacts with various materials and how magnets can be used to pull and push objects. Students act as scientists by predicting, investigating, and recording information. Students work in pairs to document findings. In Lesson 7, which corresponds to the Explain component of the 5E framework, materials prompt a discussion on the recurring science theme of cause and effect. Then, students make a claim to answer the question, "What can magnets do?" Students support their claims with evidence and provide reasoning. In Lesson 9, the Evaluate component, students answer the three questions: "How can a magnet push something without touching it? How can a magnet pull something without touching it? What kinds of objects can magnets push or pull without touching them?"
- The lessons in Unit 3, Concept 2, Wind and Weather, allow students to act as weather scientists by measuring, recording, and graphing weather information for five days. Then, at the end of this five-day lesson, students engage in an assessment to demonstrate their understanding of weather changes. Students review their weather data to answer questions and make a claim, following the claim, evidence, and reasoning framework. In the "What did you figure out?" section, students choose a correct statement among the following three choices: A. The weather is the same every day. B. Each day the weather can be different. C. Today's weather is the same as yesterday's. Students should select B.
- In Unit 4, Concept 2, Plant Life Cycles, students act as scientists by recording each stage of the lima bean life cycle. Throughout the concept, the recurring theme of how plants change is addressed with phenomenon check-ins. Then, students engage in an assessment to demonstrate their understanding of a life cycle as a continuous process. Students then describe the stages of a plant's life cycle and answer the question in the section "What did you figure out?" where they have to choose the image that shows each stage of the lima bean's life cycle.
- Materials include informal assessments that require students to integrate science and engineering practices appropriate to the student expectation being assessed. For example, in Unit 3, Concept 1, Lesson 2, Night and Day, the hands-on activity on night and sky has students predict what they think will be different about the objects found during the day and at night at the beginning of the lesson. After investigating and collecting evidence from the activity, students complete a one-question assessment to demonstrate their understanding of objects in the sky.

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

- In the materials, students apply knowledge and skills to novel contexts within assessments. Students will explore light and shadows in Unit 1, Concept 3, Lesson 5. As a class, students share their knowledge about how shadows are formed. Students then experiment with how light aimed at an object generates a shadow and how moving the light affects such shadow. Students

apply their learning to designing a shadow puppet and investigating the best ways to create shadows with their puppet and a flashlight. Following the hands-on activity, students will engage in an assessment to demonstrate their understanding of shadows. They will be able to describe how a shadow is made.

- Materials include assessments that require students to apply knowledge and skills to problems presented in real-world contexts, referred to as phenomenon check-ins. For example, in a Kindergarten lesson about objects in the sky during the day and night, after engaging in a hands-on activity, the Teacher's Guide directs students to participate in a phenomenon check-in to help students connect their thinking around their investigation findings to the real-world phenomenon for the Unit Concept, Objects in the Sky.
- Materials include informal assessments that require students to apply knowledge and skills to a new problem. In Unit 1, Concept 2, Magnets, students test a variety of objects to see if the magnet will make them move. Students notice which object the magnet moves. They use the knowledge they gained through the investigation to figure out which mystery object is in a box they can move with a magnet. Materials provide teachers with various questions during the investigation to assess their knowledge. The lesson concludes with a What Did You Figure Out? in which the teacher facilitates a brief class discussion for pairs to describe their understandings from the investigation, share what they figured out with one another, and ask any further questions they may have. Finally, students write or draw what they learned about magnets.

Discovery Education Science Techbook for Texas
Grade K

Indicator 6.2

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials include information that guides teachers in evaluating student responses. Throughout the lessons, materials provide sample responses to guide the teacher in evaluating responses and providing feedback. For example, in Unit 2, Concept 1, Lesson 2, Rock Classification, students start making predictions. The teacher asks, "What can you learn about a rock by looking at it?" The materials provide the sample response, "I can learn about its size, shape, and color." The teacher asks, "What can you learn about a rock by touching it?" The sample response provided is, "I can learn how the rock feels (texture)."
- In the case of responses to tasks, instead of providing textual sample responses, the materials indicate what the student answers should include. For example, when the teacher instructs the students to group the rocks based on shared properties, the materials state, "Student responses will vary. Students should use the words size, shape, color, and/or texture to describe each group of rocks". Materials also provide sample responses for open-ended assessments, including how students can respond to the Evaluate lesson. Every Evaluate lesson poses three questions related to the concept. These performance assessments allow students to record, perform, or find the answers in the environment. Suggested ideas for how students can

complete the assessment are provided to teachers, along with targeted guidance for evaluating student responses.

- Materials guide teachers to look for specific components when evaluating student responses. For example, materials provide a set of questions to assess student levels of understanding before, during, and after the completion of a lesson. Some examples from a lesson on Pinwheels include:
    - Ask students how they know it is wind. What will happen when moving air pushes on the pinwheel? [Before]
    - If you see a pinwheel moving, what is happening with the air around the pinwheel? [During]
    - Show students a simple three (3) images, wind, rain, and sun, and ask What made your pinwheel move? [After]
- The materials include resources that support teachers in evaluating student responses, including answer keys for assessments, automatically graded assessments, and automatic feedback in online assessments. In every final section of a lesson, called What did you figure out?, the materials provide the answer key to the question or task provided, and if the task is assigned digitally, the program collects the data from all responses in one report. The online assessments give students up to three attempts to answer. For each unsuccessful attempt at an assessment, students are given scaffolded feedback to help guide them to reach the correct answer. All of the attempts and answer selections made by the students are recorded and visible to the teacher. For instance, in Unit 1, Concept 3, Lesson 5, Making Shadow Puppets, the What Did You Figure Out? question states, “How did you make a shadow with your puppet?” The materials specify that students should select C.

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

- The Lesson Data Reflection Techbook for Texas guides teachers on how to reflect and interpret data from formative assessments in grades K-8. This document gives reflection options, such as focusing on specific questions/skills or specific students. Furthermore, it guides teachers on the next steps, such as groupings and how to locate resources that could be used to help students achieve mastery.

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

- Materials provide the Lesson Data Reflection Guidance Book and a scoring rubric for What Did You Learn assessments, thereby yielding relevant information for teachers to use when planning instruction, intervention, and extension.
- The information gathered from the assessment tools, which consist of one-question formative assessments at the end of a lesson, can be used by teachers when planning differentiated instruction. The formative assessment report provides a color-coded list of students, based on their performance, and can be used to group students according to assessment results. Also, using this data, teachers can go into the lesson and assign or reassign lessons or content.

Discovery Education Science Techbook for Texas
Grade K

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

- Student resources include flashcards to review vocabulary; a bank of SOS strategies (Spotlight on Strategies) with different strategies to teach and review concepts; online skills practice activities for students to use at home; and an assessment builder for the teacher to create their assessments with the concepts or standards they want to assess.
- The Lesson Data Reflection Techbook for Texas provides guidance for responding to student data, including directions on accessing tools and content to support reteaching, remediation, and extension. In the section of the document, Tools to Support Student Learning, teachers are given guidance on how to locate resources based on content or lessons.

Discovery Education Science Techbook for Texas
Grade K

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

Evidence includes but is not limited to:

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

- Assessments contain items for the grade level that are scientifically accurate. For example, in Unit 1, Concept 1, Lesson 8, Properties of Objects, which corresponds to the Evaluate section of the concept, the materials use the scientific term *properties*, as opposed to *characteristics* or *attributes*, when asking the question “How can you sort objects based on their properties?” In Unit 1, Concept 3, Lesson 9, Light, the formative assessment uses the word affect rather than change when students are asked, "How do different amounts of light affect the appearance of objects?"
- The materials contain assessments that align with objectives. For example, in Unit 2, Concept 1, Lesson 2; Observing Rocks, Water, and Soil, the objective for the lesson states, “By the end of the lesson, students will be able to classify rocks by the observable properties of size, shape, color, and/or texture.” At the end of the investigative lesson, the formative assessment question relates back to this objective when it asks, “Which two properties could you use to classify these rocks?” A photograph of three rocks (shale, slate, and gneiss) is included.
- Assessments contain items for the grade level or course that are free from errors. While reviewing all the questions from the different assessments provided, no errors such as miscalculations, mislabeling units of measurement or incorrect terminology were found.
- Assessments contain items for the grade level or course that avoid bias. Formative and summative assessments include items that present content and examples fairly and impartially with no impact on student performance based on such factors as a student’s home language,

place of origin, gender, or race and ethnicity. For example, assessments related to Unit 3, Concept 1, Objects in the Sky, provide images of various locations, such as a flower field and a canyon.

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

- The assessments use clear pictures and graphics. For example, in Unit 2, Concept 1, Exploring Rocks, Lesson 4, Properties of Rocks, after students have learned to classify rocks based on their observable shape, the formative assessment "What did you figure out?" provides photographs of real rocks with clear geometric shapes. Students sort them out as "round" or "square". In Unit 4, Concept 3, Lesson 2, Animal Needs, the formative assessment that follows the investigative lesson on animal needs includes pictures of a hawk's beak, a dog's tongue, and an animal's paw. The images include a magnifying tool to enlarge the image and clarify it for the students.
- The assessments use developmentally appropriate pictures and graphics. For example, in Unit 4 Plants and Animals, Concept 1, Lesson 3, Getting to Know Plants, the Interactive presentation uses computer-generated graphics to make it clear for students which part of the plant they are pointing at when naming it and what elements the plant needs to survive. In the formative assessment at the end of the lesson, after students are familiar with the concept, they use real-life photographs that students must choose to identify what plants need to live.

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

- The materials guide teachers to consistently and accurately administer assessment tools. Materials include a formative assessment at the end of every lesson titled "What did you figure out?" and one "Evaluate" lesson at the end of every concept, allowing the teacher to consistently administer assessment tools.
- Every concept assessment provides three questions the students can answer in multiple formats (written response, oral response, performance task). The materials clearly outline what the answers must include. For example, in Unit 2, Concept 1, Lesson 9, Exploring Rocks, one of the questions is "How can you describe rocks?" The materials provide the following guidance about the answer: "Student responses will vary. Sample response: should include words that can be used to describe rocks by their size (large, medium, small, etc.), shape (round, triangular, etc.), color (brown, white, black, etc.), and texture (rough, smooth, etc.)"Additionally, specific guidance for the teacher on how to score the three questions included in each assessment and how to reflect on student data after the assessment has been scored can be found in the Scoring Guidance for What Did You Learn resource.
- Additionally, assessments have a section called Setting the Purpose. In this section, the text states, "There are several opportunities for assessment throughout the program. Begin by having students share the key ideas they have learned throughout the concept. Their responses will vary but should reflect an understanding of light. Have students work through the questions individually or in groups. Students may choose the modality they would like to use to show what they learned, or the teacher may want to encourage them to use each modality once. Make notes as students plan and share what they have learned."
- The scoring rubric for the Concept Assessment found in the Evaluate lessons K-2 provides specific guidance for the teacher on how to score the three questions in each assessment and how to reflect on student data after the assessment has been scored.

Discovery Education Science Techbook for Texas
Grade K

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

- The materials offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. For example, every concept assessment provides three questions that the students must answer in any format they want (in writing, orally, with a performance, or finding the answers in the environment), allowing them to demonstrate mastery of learning goals in a way that best adapts to their abilities. Students can also choose to work in groups or individually to complete the task.
- The materials offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. For example, in the case of the formative assessments that appear at the end of every lesson under the title “What did you figure out?” the materials give students three attempts to get the answer correct, and every time a student chooses the wrong answer, the materials provide a hint or a suggestion that allows the students to think over their answer and how they can correct their mistake to be successful.
- Materials offer accommodations for assessment tools so all students can demonstrate mastery of learning goals. For example, the formative assessments throughout the program have reduced questioning to one objective-based question. The digital platform of the assessments allows for multiple attempts of the question, with embedded scaffolds.

Discovery Education Science Techbook for Texas
Grade K

Indicator 7.1

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

Evidence includes but is not limited to:

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

- Assessments contain items for the grade level that are scientifically accurate. For example, in Unit 1, Concept 1, Lesson 9, Material Properties, which corresponds to the Evaluate component of the concept, the materials use the scientific term *properties*, as opposed to *characteristics* or *attributes*, when asking the question “How can you classify materials based on their properties?”
- The materials contain assessments that align with objectives. For example, in Unit 2, Concept 2, Lesson 2, Let It Rain, the objective for the lesson states, “By the end of the lesson, students will be able to use a model to investigate and describe how wind and water can change Earth’s surface…” At the end of the investigative lesson, the formative assessment question relates back to this objective when it asks, “How do wind and rain change the Earth’s surface? Select the correct answer.” It also includes a picture of sand to serve as a visual reminder of what the Earth’s surface can look like.
- Assessments contain items for the grade level or course that avoid bias. Formative and summative assessments include items that present content and examples fairly and impartially with no impact on student performance based on such factors as a student’s home language, place of origin, gender, or race and ethnicity. For example, in Unit 3, Weather Observations, assessments provide images of two children fairly and impartially.

- Assessments contain items for the grade level or course that are free from errors. While reviewing all the questions from the different assessments provided, no errors such as miscalculations, mislabeling units of measurement, or incorrect terminology were found.

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

- The assessments use clear pictures and graphics. For example, in Unit 2, Concept 3, Lesson 6, Moon Model, after students have learned about the sun and the moon, students answer the question, "How do the sun and moon compare?" The materials provide a real-life photograph where both the Sun and the Moon can be seen.
- The assessments use developmentally appropriate pictures and graphics. For example, in Unit 4, Concept 1, Lesson 3, Getting to Know Plants, the interactive presentation uses computer-generated graphics to clarify for students which part of the plant they are pointing at when naming it and what elements it needs to survive. In the formative assessment at the end of the lesson, after students are familiar with the concept, they use different computer-generated images that students must choose from to identify what plants need to live. In Unit 4, Concept 3, Lesson 3, Life Cycles of a Butterfly, the formative assessment contains three developmentally appropriate images of butterflies at various stages in the life cycle.

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

- The materials guide teachers to consistently and accurately administer assessment tools. There is a formative assessment at the end of every lesson titled "What did you figure out?" and one Evaluate lesson at the end of every concept, which allows the teacher to consistently administer assessment tools.
- Each concept assessment provides three questions the students can answer in multiple formats (written response, oral response, performance task). The materials clearly outline what the answers must include. For example, in Unit 2, Concept 1, Lesson 9, Natural and Manmade Resources, materials ask, "What is the difference between natural and manmade resources?" The materials provide the following guidance about the answer: "Answers should mention that natural resources are found in nature while manmade resources are things made by humans. Natural resources may be renewable, such as trees, water, soil, and air, or nonrenewable, such as iron, copper, oil, and coal. Manmade resources are made from natural resources that have been changed." Additionally, specific guidance for the teacher on how to score the three questions included in each assessment and how to reflect on student data after the assessment has been scored can be found in the Scoring Guidance for What Did You Learn resource.
- Additionally, assessments have a section called Setting the Purpose. In this section, the text states, "There are several opportunities for assessment throughout the program. Begin by having students share the key ideas they have learned throughout the concept. Their responses will vary but should reflect an understanding of light. Have students work through the questions individually or in groups. Students may choose the modality they would like to use to show what they learned, or the teacher may want to encourage them to use each modality once. Make notes as students plan and share what they have learned."
- The scoring rubric for the Concept Assessment found in the Evaluate lessons K-2 provides specific guidance for the teacher on how to score the three questions in each assessment and how to reflect on student data after the assessment has been scored.

Discovery Education Science Techbook for Texas
Grade K

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

- The materials offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. For example, every concept assessment provides three questions that the students must answer in any format they want (in writing, orally, with a performance, or finding the answers in the environment), allowing them to demonstrate mastery of learning goals in a way that best adapts to their abilities. Students can also choose to work in groups or individually to complete the task.
- The materials offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals. For example, in the case of the formative assessments that appear at the end of every lesson under the title “What did you figure out?” the materials give students three attempts to get the answer correct, and every time a student chooses the wrong answer, the materials provide a hint or a suggestion that allows the students to think over their answer and how they can correct their mistake to be successful.
- Materials offer accommodations for assessment tools so all students can demonstrate mastery of learning goals. For example, the formative assessments throughout the program have reduced questioning to one objective-based question. The digital platform of the assessments allows for multiple attempts of the question, with embedded scaffolds.

Discovery Education Science Techbook for Texas
Grade K

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 various learning interests and needs.

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

Evidence includes but is not limited to:

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

- Materials engage students in content through a variety of developmentally appropriate strategies. For example, materials include lessons tied to real-world phenomena through images, videos, and experiences. In Unit 3, Concept 1, Lesson 1, How Can We Learn About Weather?, students first observe pictures of objects in the sky or go outside to look up at the sky and draw any objects they see. The teacher sets the purpose for learning and leaves time for students to ask questions. Then, students watch a Real-World Phenomenon video that shows a time-lapse of day and night skies. Materials include video clips and interactive labs to introduce or reinforce specific science concepts. For example, in Unit 3, Concept 1, Lesson 5, Measuring Weather, students watch a video showing patterns that occur day and night.
- Materials also include authentic tasks in which students use tools to measure and collect data. For example, in Unit 1, Concept 1, Lesson 1, students identify the properties of objects and describe and sort objects based on their properties by drawing or writing what they see.

- Under Unit Resources, materials provide "Key Vocabulary Strategies" to introduce vocabulary in a game-like format, developmentally appropriate for Kindergarten. For example, in Unit 1, Concept 1, Properties of Objects, the suggested strategies include "Act It Out," in which the teacher assigns partners and has students act out the words. In contrast, their partner tries to guess which vocabulary word it is. Another suggested strategy is "Guess the Meaning," in which students work in pairs or small groups. Each group writes or draws a guess for each vocabulary word's definition. Then, they provide the word in context but do not define it. Groups revise their meanings if they wish. Finally, the teacher offers the glossary definition. Students rate themselves on how close their guess came to the glossary definition.
- Materials also use developmentally appropriate "Spotlight on Strategies" (SOS strategies) to engage students in the mastery of the content. A comprehensive list of all the SOS strategies used throughout the program is in the Educator Supports section (accessible through the menu icon) under the "Instructional Strategies" tab. The list includes strategies for reading, watching videos, developing vocabulary, supporting English Language Learners, summarizing information, comparing and contrasting, and different activities for cooperative learning. For example, in Unit 1, Concept 1, Lesson 7, At the Grocery Store, materials incorporate the Take a Stand SOS Strategy after reading a text. In this strategy, the teacher makes a series of true and false statements from the text. Students stand or remain sitting to indicate whether they agree or disagree with each statement. For example, "Strawberries would be sorted with the hot foods (Disagree, Sit)" and "Ice cream would be sorted with the cold foods (Agree, Stand)."
- Materials include opportunities for students to engage in collaborative learning activities. For example, students complete most hands-on activities with a partner or a small group. In Unit 2, Concept 2; Lesson 2; Observing Rocks, Water, and Soil; students work with a partner to investigate what each material looks like up close.

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

- Materials support a variety of instructional groupings (e.g., whole group, small group, one-on-one). For example, during hands-on investigations, the teacher introduces the lesson, outlines the objectives, and gives instructions to the whole class. Then, students work in groups to conduct the investigation, but they record their observations individually. At the end of the lesson, there is always a "Turn and Talk" activity conducted in pairs. For example, in Unit 2, Concept 1, Lesson 2, Rock Classification, the teacher starts the lesson whole group by stating the objectives of the hands-on activity. As students make predictions about their investigation, the materials allow them to work in small groups or pairs to discuss their predictions and then share them with the class. As the students begin to investigate rocks, the materials state, "Tell students that they will work with a partner to investigate the properties of each rock." The lesson concludes with students independently reflecting on what they have learned.
- Materials offer turn and talk partner groupings throughout the Explore lessons within each unit and concept. For example, in Unit 1, Concept 1, Lesson 3, Materials in the Schoolyard Landscape, students Turn and Talk after viewing the video. In Lesson 5, after reading a text, students Turn and Talk as they answer the question, "How would you describe the sandpaper in the video?" In Lesson 7, there is another opportunity for students to turn and talk after reading a text.
- Materials provide teacher guidance on using specific grouping structures based on student needs. For example, in Unit 4, Plants and Animals, Concept 1, Plants, Lesson 7, How Do Plants Get Their Needs Met?, during the "Making a Claim" section, the materials state, "If needed, you

may scaffold this step by developing the claim together as a class." In Unit 3, Concept 1, Lesson 9, Objects in the Sky, materials suggest grouping students organically when evaluating content so that there are various voices within each small group. During the Evaluate lesson, students can decide to work individually or in groups and choose the modality they want to use to show what they learned.

- Additionally, materials support flexible grouping through the use of online tools. The K–5 Program Guide explains how teachers can assign instructional resources to individual students, groups, or an entire class using the "Assign" feature on the Science Techbook website or their preferred Learning Management System (LMS). According to the Program Guide, teachers can tailor instruction and meet the needs of all students by assigning content, strategies, or supports based on specific learning or developmental needs.

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

- Materials provide multiple types of practices throughout the lessons, including modeled, guided, collaborative, and independent. For example, during hands-on investigations, the teacher introduces the lesson, outlines the objectives, and gives instructions to the whole class. Then, students investigate groups, but they record their observations individually. After they have finished their investigation, students share their findings with a partner through a "Turn and Talk" activity. To wrap up the lesson, during the "Phenomenon Check-in" stage, the teacher summarizes the concepts to the whole class through a video or slideshow. In Unit 1, Concept 1, Properties of Objects, students collaborate with a partner on Lesson 1 to discuss the new phenomena. In Lessons 2 and 4, students first make predictions and share them with the class. Then, the teacher provides instructions, models the data collection chart, and guides students through the hands-on activity they complete in small groups. In Lesson 4, the teacher facilitates a brief class discussion for groups to describe their understanding of the investigation, share what they figured out with one another, and ask any further questions they may have. Finally, students revisit the question from the real-world phenomena introduced in Lesson 1. In Lesson 5, the class reads together, guided by the teacher. In Lesson 8, students work independently or in groups to show what they have learned throughout the unit concept.
- Materials recommend frequent and varied learning assessments to ensure that multiple types of practices lead to student mastery. Explore lessons with hands-on activities, including a "What Did You Figure Out?" section in which students have multiple opportunities to show understanding. First, they select the answer to a question in digital or print form, usually by clicking or circling on a picture. Next, the class reviews the questions students generated in the previous lesson to see if the students answered the questions. Then, the teacher facilitates a brief class discussion for groups to describe their understanding of the investigation, share what they figured out with one another, and ask any further questions that they may have. Finally, students answer an open-ended question in verbal or written form.
- Additionally, at the end of every hands-on lesson, materials include Phenomenon Check-Ins, in which they repeat the driving question from Engage to prompt students to think about how their observations and findings help them better understand real-world phenomena. The Explain lesson of each concept provides a different assessment of learning using the claim, evidence, and reasoning framework for students to construct and present their scientific explanations through their choice of oral presentations, writing, or drawing. Every concept also

includes a final Evaluate lesson in which students answer three assessment questions, choosing to record, perform, or find the answers in the room.

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

- Materials represent a diversity of communities using images that are respectful and inclusive. For example, the children shown in student and teacher material guides portray a variety of genders and races from various abilities. In the cover picture of each lesson, when they display students working on a scientific investigation, they show kids from diverse genders, races, and ethnicities.
- Materials represent a diversity of communities using information that is respectful and inclusive. For example, when you access a lesson, some robots introduce themselves at the bottom of the page using names representing different ages, genders, and ethnicities. These characters change every time you access a page but are always the same. They are Victor, Disco, Zoe, Eduardo, Abuelo, Mei, and Keiki.
- Materials represent diverse communities using images and information that are respectful and inclusive. The materials positively portray a diverse group of scientists, engineers, and people in the community. For example, the Evaluate lesson highlights a STEM career at the end of every unit. The adults portrayed are of various genders, ethnicities, and races. In Unit 1, Concept 1, Lesson 7, At the Grocery Store, materials depict a grocer as both male or female and of different ethnicities.

Discovery Education Science Techbook for Texas
Grade K

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 provide specific guidance for linguistic accommodations commensurate with various levels of English language proficiency. The teacher manual embeds scaffolds for emergent bilingual (EB) students into lessons, such as visuals, realia, gestures, sentence stems, graphic organizers, anchor charts, and manipulatives. For example, in Unit 3, Concept 1, Exploring Rocks, as students ask questions in the Engage lesson, a differentiation section states, "Help students create questions by posting question stems in the classroom. Encourage them to do a gallery walk around the classroom, using the stems to ask different questions." In Unit 2, Concept 1, Lesson 3, Rocks, the materials provide suggestions for English Language learners based on their proficiency.
- For Beginning level EB students, materials state, "Write/project the properties size, shape, texture, and color on the board. Use hand gestures as prompts for students to give oral adjectives for size: big, small, medium. Connect to the word size." For Intermediate level EB students, the materials state, "Write/project the properties size, shape, texture, and color on the board. Without using prompts, have students orally generate a list of adjectives. Record their responses." For Advanced level EB students, materials state, "Write/project the properties size, shape, texture, and color on the board. Ask students to pick an object in the room and describe it using each of the four properties." For Advanced High-level EB students, the materials state, "Write/project the properties size, shape, texture, and color on the board. Ask students to pick two objects in the room and describe how they are alike or different using the

four listed properties." In Unit 3, Concept 1, Lesson 3, The Pattern of Day and Night, the teacher is prompted to do the interactive as a whole class with Beginning level EB students. Advanced High EB students engage in the activity independently, and, in the end, the teacher shows them the Earth rotating and asks them to share one thing they observe and one question that they have using the prompts "I notice . . ." and "I wonder . . ."

- Materials include scaffolds for emergent bilingual students, such as visuals, realia, sentence stems, and graphic organizers. The curriculum contains examples of these scaffolds throughout. For example, in Unit 2, Concept 2, Water, Rocks, and Soil, materials provide pictures of a boat and multiple images of water to support Lesson 1. In Lesson 4, the guidance allows the teacher the option to present realia to provide examples of things that are made of concrete. The sentence stem "____ is made of concrete" is provided. In Lesson 5, materials use the Placemat Strategy to support students in taking notes on a graphic organizer.
- Materials include a differentiation section that demonstrates ELPS connection by reinforcing the language of the ELPS. For example, in Unit 2, Concept 2, Lesson 2, Observing Rocks, Water and Soil, the materials state, "Help students develop their listening and speaking skills by having them repeat what a classmate has shared aloud."

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

- Materials include textbooks or audio/video clips that explain concepts in languages other than English. For example, materials include links to translate the student's first language. Across the materials, an immersive reader within the vocabulary pop-up feature offers reading support in 122 languages. In "present to class" mode, an emergent reader tool option will translate the presentation into multiple languages. Materials also include video clips that explain concepts in languages other than English. All videos included in the materials can be closed captioned in various languages.
- Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. For example, in every unit, under Unit Resources, there is a tab labeled "Flashcards," where the teacher can find printable flashcards of the vocabulary studied throughout the unit with pictures and words on one side and definitions in English and Spanish on the other. Some of the terms included are cognates. For example, in Unit 4, Plants and Animals, student materials provide flashcards and a glossary including words such as *plant/planta* and *structure/estructura*. Additionally, in every concept with an interactive activity, students can choose whether to do the interactive activity in English or Spanish to meet their needs best to complete the activity independently. In the Spanish version, the instructions, the information, the buttons, and the immersive reader are all in Spanish.

Discovery Education Science Techbook for Texas
Grade K

Indicator 7.4

Materials guide fostering connections between home and school.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials provide information to share with students and caregivers about the design of the program. For example, under the tab labeled “Course Materials,” there is a document called “Caregiver Course Overview” that provides unit information about key ideas (“I can” statements), key vocabulary, unit phenomenon, and home connection activities. Within the course materials is a parent/guardian letter that provides information about the program and explains some of the most relevant features of the program, including real-world observations, videos, labs, digital tools, and game-like activities. The letter also details how to access online course materials.
- Materials provide an overview of science and engineering practices in easy-to-read language. For example, the Parent/Guardian Letter states, “The new standards expect students to act and think like scientists and engineers—and this brand-new curriculum will nurture this behavior. Science Techbook for Texas encourages students to continue to ask questions about the world around them and solve real-world problems.”
- Materials also provide information to students and caregivers about the program's design through the K–5 Program Guide, which can be found in both the Teacher and the Student versions of the Techbook. In this document, the materials provide information about the program, such as course organization, research-based foundations of the program, alignment to TEKS, and program components.

Discovery Education Science Techbook for Texas
Grade K

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

- Materials provide resources and strategies for caregivers to help reinforce student learning and development. In the Caregiver Course overview, there are extension activities included for each unit. A section called Home Connections lists various activities to do with learners, including Phenomenon in the Home, Conversation Starters, Vocabulary Practice, and a Scavenger Hunt. For example, in Unit 1, Objects, Magnets, and Light, materials suggest parents have the kids sort their toys based on their properties or start a conversation during a meal with "What are all the ways we can describe the food we are eating?"
- The Caregiver Course overview includes a link to vocabulary practice for every unit. Parents can use this tool to create games like crossword puzzles, cryptograms, word searches, and other activities to reinforce vocabulary with their children.
- Materials provide a "Parent / Guardian Letter," encouraging guardians to use it with the students. The letter states, "In this Student Edition, you will find QR codes that take you and your student to corresponding online lessons of Science Techbook for Texas… We encourage you to support your student in using Science Techbook for Texas."

Materials include information to guide teacher communications with caregivers.

- Materials include a letter for parents and guardians with the Caregiver Overview Course component. This letter includes the following information to guide teacher communication with caregivers under the "Communicating with Caregivers" heading: *"Invite caregivers to share feedback or questions about the curriculum. At key points in the instructional cycle, reach out to caregivers to communicate student progress updates, using available data from Science Techbook reports, check in on at-home activities, and set up conferences, as needed. At the beginning of the year, communicate with caregivers to indicate how they can access their student's assignments, progress, and grades to help monitor student progress throughout their science journey of curiosity.*
- Teacher guidance within the Caregiver Overview Course also includes information to guide teachers in communicating progress updates in the Caregiver Overview Course. Materials advise teachers as follows: *Consider capturing a screenshot of the student's assignment dashboard and sending it out to caregivers on a monthly basis to keep them updated on their progress. The lesson and concept summative reports can be used for face-to-face, or virtual conferences with parents to display student proficiency toward the desired learning goals. Sample student responses for items, particularly constructed response items, can be viewed and shared with parents from the lesson and summative report. When conducting parent conferences, encourage them to engage their child in monitoring their own learning.*

Discovery Education Science Techbook for Texas
Grade K

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 include a cohesive scope and sequence that shows how the scientific knowledge and skills TEKS are addressed over the entire year. On the home screen for the Science Techbook for Texas, there is access to a Vertical Alignment Guide, showing the vertical alignment of the Core Concepts taught in the program throughout the school years.
- The Table of Contents in the grade K Science Techbook shows the units and Core Concepts in sequential order. Each concept shows the TEKS that the lessons cover. This document shows the number of lessons and minutes needed per lesson. Careful pacing, including days and minutes, is provided in the Unit Structure and Pacing document found within Unit Resources. Additionally, at the beginning of each lesson, the specific targeted standards are listed with a concise skill description.

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

- The materials provide teacher clarity in understanding how activities and experiences connect concepts and Science and Engineering Practices (SEPs). Each concept within a unit explicitly presents a Science Theme in the Engage lesson, with a prompt for the teacher to consider throughout multiple lessons. For example, in Unit 1, Lesson 1, the introduction and objectives portion of the lesson includes a slide titled “Supporting Science Themes,” which explains to the teacher, “Identifying forms of matter requires students to identify properties. Properties of

objects can be alike or different. As students work through the unit, encourage them to notice the following: Objects can be solids or liquids. Objects may share one characteristic but not others. Objects are not exactly alike in every way." It adds, "After students learn more about classifying objects, they can engage in a similar process to identify an object's state of matter."

- Materials provide teachers with a section called Educator Notes in each portion of a lesson, which provides questions for teachers to ask and connections between scientific and engineering practices with a Real-World Phenomenon section. For example, in Unit 1, Lesson 6, the "Intro and Objectives" part of the lesson includes a slide titled "Supporting Science Theme Check-In," which provides the teacher with clear guidance for facilitating student-made connections across recurring themes and concepts. It states, "In the Engage lesson, students were introduced to a recurring theme to consider during learning. Before making a claim using evidence and reasoning about phenomena, invite students to reflect on the Supporting Science Theme for this concept. Say: We have explored Matter and Energy as we learned about Properties of Objects. Next, invite students to share what they have explored about the Supporting Science Theme in the concept. Accept all ideas and help students to collaboratively connect their learning across all disciplines."

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

- The materials include intentional practice and spiraling of previously taught knowledge and skills from earlier lessons/grade levels and the current lesson's science knowledge and skills**.** In the TEKS alignment document found in the Science Techbook, there is a list of all standards that shows which unit and core concept is aligned with it. For example, materials cover K.1.B in Concept 1.3 Light, Concept 1.2 Magnets, Concept 1.1 Properties of Objects, Concept 2.2 Water, Rocks, and Soil, and Concept 2.1 Exploring Rocks.
- The practice opportunities build on previously taught science knowledge and skills. Every unit includes a lesson on each of the 5E model components for each core concept, providing intentional practice of the newly learned science knowledge and skills. All units offer multiple Explore lessons, and one or more of the Explore lessons consistently include a hands-on activity, a video, and an interactive practice. The Explain lesson in each core concept follows a Claim, Evidence, and Reasoning format. The Evaluate lesson constantly asks students, "What Did You Learn?" and prompts them to answer questions with the knowledge and skills gained throughout the concept exploration.

Discovery Education Science Techbook for Texas
Grade K

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.

- The materials include overview documents to support teachers in understanding how to use all materials and resources as intended. Teachers are provided a *Quick Start Guide for Grades K-5* in the materials' first steps. This guide includes a list of materials, recommendations for storage, and tips to prepare for instruction. Additionally, the K-5 Program Guide provides an overview of each program section. It highlights the main features in the print and digital Teacher's Edition, including how to access digital tools, pacing guides, differentiation strategies, assessments, and slideshows. The program guide also elaborates on the course content and various instructional strategies, including Scientific and Engineering Practices (SEPs), Recurring Themes and Concepts, Core Scientific Topics, Research-based Spotlight on Strategies (SOSs), and Real-World Phenomena. Other sections in the guide address student discourse, equity and diversity, flexible learning, literacy, differentiation, and Science, Technology, Engineering, and Mathematics (STEM) certification. For example, the program suggests using Elaborate section lessons on STEM careers as enrichment activities to accelerate and extend learning.

Discovery Education Science Techbook for Texas
Grade K

- The organization of the materials facilitates ease of implementation and use. The materials are available in digital format and print as an optional purchase. The print and digital versions of the Teacher Edition have a table of contents and a pacing guide at the beginning of each unit. In the online Science Techbook, each unit includes a Unit Resources tab that contains Unit Structure and Pacing, Unit Planner, Background Knowledge, Hands-On Lessons: Preparation and Materials, Standards Alignment, and Flashcards.
- The Educator Notes include instructional strategies, tips, and detailed instructions at the lesson level. There is an explanation or note for each slide included in the lessons. For example, in Unit 1, Concept 1, Lesson 2, Describing Objects, educator notes have tips for the teacher to consider before the investigation. They state, “Discuss the procedures with the students before they begin;” “Ask a few students to summarize the instructions in their own words,” “Set a time limit for the investigation steps,” “Review procedures for cleanup prior to the investigation,” and “Review how students should collect data during the investigation.”
- For hands-on activities, teachers are provided teacher videos showing the investigation. For example, in Unit 1, Concept 2, Lesson 2, Magnet Experiment Centers, the Educator Notes include a video for the hands-on activity, which shows all the materials needed and their organization, offers a teacher going through the preparation of the materials, and demonstrates each step for both teacher and students. The video also provides questions to ask before, during, and after the activity. The Educator Notes also include guidance on the interactive part of the lessons. For example, in Unit 1, Concept 1, Lesson 8, Properties of Objects, the Intro and Objectives notes say, “Then, have students work through the questions individually or in groups. Students may choose the modality they would like to use to show what they learned, or the teacher may want to encourage them to use each modality once. Make notes as students plan and share what they have learned.”

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

- The materials include science standards correlations for units and core concepts within the grade level or course context in teacher guidance documents and online resources. Each grade level has a TEKS and ELPS alignment link with a dropdown menu showing cross-content standards. For example, this section shows TEKS K.1.A is covered in Concepts 1.3 Light, 1.2 Magnets, 2.1 Exploring Rocks, 2.2 Water, Rocks, and Soil, and 3.1 Objects in the Sky. A tab includes hyperlinks to these concepts and all the lessons related to that concept. Additionally, the Unit Resources include a Standards Alignment Table, which provides a table showing the grade-level standards and how they are covered within the concepts of the specific unit. Teachers can find the particular standards related to each lesson in the student objectives, which are presented at the beginning of the lesson and are linked to the specific TEKS.
- The materials include cross-content English and Language Arts (ELA) standards within the teacher’s lesson guide. Across grade levels, materials embed cross-content correlation to ELA. Each unit concept contains at least one literacy lesson, labeled as the Reading Together section within the lesson. Each literacy lesson has different reading strategies. For example, Unit 1, Concept 3, Lesson 2, Turn On the Lights, prompts the class to use reading strategies before, during, and after reading to support student sensemaking, including making predictions, setting a purpose, and identifying main ideas.

Discovery Education Science Techbook for Texas
Grade K

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

- The materials include a document with a comprehensive list of all equipment and supplies needed to support students, teachers, and administrators during investigations in accordance with and in addition to the grade level. Under Unit Resources, each unit includes a document titled "Hands-On Lessons: Preparation and Materials." For example, in Unit 1, Concept 1, materials are listed per lesson, including a description of the necessary advanced prep. For instance, for Lesson 3, the document states, "For each group, tie a string to the end of a paper clip, and tape the string to a desk or table. Prepare three small cardboard boxes, each containing paper clips, plastic buttons, and glass marbles. Seal each box with tape." The Content Kits include a Hands-On Content Kits List, which details all materials needed for the grade-level course.
- Grades K-2 materials include equipment and supplies that support instructional activities for the grade level. For example, for grades K-2, materials include Science notebooks, clay, magnets, flashlights, craft sticks, metric rulers, scissors, pictures, plastic tongs, blocks, balls, string, wax paper, thermometers, rain gauges, different types of soil, and models.

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

- The materials provide teacher and student guidance for safety practices and grade-appropriate use of safety equipment during investigations in accordance with Texas Education Agency Science Safety Standards. The materials consistently include a section titled Safety within the Explore lessons' slides and educator notes with guidelines for safety during the hands-on activities. For example, in Unit 1, Concept 1, Lesson 2, Describing Objects, as the teacher presents a hands-on activity on describing objects, the educator notes say, "Remind students to follow all lab safety guidelines" and "Remind students to keep objects away from their eyes, nose, and mouth." In Unit 3, Concept 1, Lesson 2, Night and Day, slide 6 provides a safety reminder for the teacher to share with the students before beginning the hands-on activity.

Discovery Education Science Techbook for Texas
Grade K

Indicator 8.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials include support for specific scheduling considerations, with guidance for covering required science content for the grade level/course within various schedules. Under Unit Resources, the Unit Structure and Pacing charts provide teachers with pacing information for each concept, including the number of days per lesson and the minutes required for each lesson. Materials also provide an alternative Express Pathway for scheduling considerations. For example, for Concept 1.1, Properties of Objects, while the comprehensive pathway suggests nine days to cover the eight lessons and the digital assessment, the express path means teaching five classes in a five-day window.
- The materials include guidance and recommendations on required time for lessons and activities with options for various scheduling considerations. On average, each core concept within a unit lasts 9–12 days or 180–240 minutes. The concepts are covered in 5–6 days or 100–120 minutes in the express pathway. All lessons are built within 20-minute segments, with most hands-on exploring lessons designed to require 40 minutes and be taught in multiple days.
- The lesson plan pacing summary details each part of the lesson by minute and day. For example, in Unit 3, Concept 1, Lesson 8, Exploring the Sky Above, the Intro and Objectives part of the lesson takes five minutes, and the Science, Technology, and Engineering (STEM) Careers portion takes 10 minutes. In Unit 1, the hands-on activity with magnets breaks down into a five-minute introduction, a 25-minute activity, a five-minute formative assessment, and a five-minute phenomenon check-in.

Discovery Education Science Techbook for Texas
Grade K

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

- Materials provide guidance for strategic implementation that ensures the sequence of content is taught in an order consistent with the developmental progression of science. For example, the materials include a suggested sequence of units that considers the interconnections between the development of conceptual understanding and scientific and engineering practices. The Kindergarten Science Techbook has a vertical alignment document showing how students build knowledge and skills within and across units and grade levels.
- Materials purposely group modules with similar recurring themes and ideas, making it easier for students to connect scientific knowledge. For example, in Unit 1, the three core concepts include objects, magnets, and light.
- The materials delineate the order of units to ensure students learn about precursor concepts first. In grade K, the materials have students investigate the properties of objects before teachers ask students to explain how magnets interact with various materials in the following core concept.

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

- The materials include units, lessons, and activities for a full year of instruction. The table of contents shows all concepts covered throughout the year and the total minutes for each. According to the publisher, “All lessons included in each course do not exceed 160 days of instruction to meet the required course standards.” The materials do not include a year-long pacing showing the required weeks.
- The scope and sequence indicate a majority of the lessons support the development of the TEKS, SEPs, and recurring themes and ideas among all areas of the grade level. The units can be reasonably implemented within the time constraints of a school year, and the activities and routines within each lesson can reasonably be completed within the time suggested, with all lessons designed in 20-minute blocks per day.
- The materials provide guidance for adjusting to local time and scheduling constraints. For example, the Unit Structure and Pacing document notes how many days each lesson should take. The Unit Structure and Pacing Guide offers two pathways for adjusting to local time and scheduling constraints: Comprehensive Concept Pathway and Express Concept Pathway.
- For example, the materials provide detailed suggestions for implementing the materials with school years of varying length, varying lengths of time for science instruction, options for the entire class and small group intervention times, and online schools. For example, the express pathway suggests using the read-aloud lessons during the English and Language Arts (ELA) block. Using the videos and Read Together section as station activities further saves time. The 5E model is explicitly listed in the pacing charts to indicate which lessons are Extensions (Elaborate) and can be used for acceleration or omitted under time constraints. In the K-5 Program Guide, the publisher includes a section on Flexibility which explains that “teachers can assign instructional resources to individual students, groups of students, or an entire class using the Assign feature or their preferred Learning Management System (LMS),” providing options for the entire class and small group intervention time.

Discovery Education Science Techbook for Texas
Grade K

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.

- Digital materials include an appropriate amount of white space and an overall design that does not distract from student learning. Margins, edges, and empty spaces around the content are consistent throughout digital materials. Materials use a limited number of fonts. Most student pages include 1–3 sentences at most, combined with a colorful and engaging picture.
- Materials enhance student learning without being distracting or chaotic. For example, in every lesson, there is a slideshow that uses most of the space on the screen. The space around it is sufficiently white not to distract students, and the only information found in this white space, using discrete typography, is the student objective for the lesson and the links to the glossary and the test results that students can click to refer to. Students can amplify the slideshow to fit the screen size. Every slide has a very clean organization, occupying half of it with a picture to illustrate the text and the corresponding text on the other half, leaving enough white space around the text and margins not to overwhelm the student's view.
- Student materials are appropriately designed to support student learning. For example, each unit is identified with a cover picture, and the number of the unit and its title are easily identifiable by students next to each cover picture. Once a student clicks on a unit, they can see all the lessons either in grid or list form, each one easily identifiable with a picture, number of the lesson, title, and objective. The content is organized in a logical progression. Tools students can use to annotate text (such as highlight, strikethrough, etc.) and pointers while reading digital text. Ancillary student materials, such as glossaries and tools, are easy to find and/or access inside each lesson. When text is read aloud by the computer, each word is highlighted as it is read.

Discovery Education Science Techbook for Texas
Grade K

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

- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, on the slideshow of every lesson, the slides show photographs that illustrate the text. In slides that contain graphic organizers, they show an example of the graphic organizer and how it can be filled out. In the case of some slides that only contain a question or an instruction, there is a little character that livens up the slide's design but is small enough not to be distracting.
- Another place where we can find age-appropriate pictures and graphics that support student learning and engagement without being visually distracting is in the interactive activities found in Explore lessons. These are interactive game-like activities that include computer-generated images that are greatly attractive to students and engage them in solving the activities. The instructions and comments on each image are clearly defined by placing them inside a white frame so that students can easily locate them, featuring a text-to-speech function that allows students to hear the comments as they read them. For example, in Unit 4, Concept 3, Lesson 3, Organism Needs, the interactive activity provides animated graphics for students to click on and interact with to further their understanding of living things' needs for food, shelter, and habitat.

Materials include digital components that are free of technical errors.

- The materials include digital components that are free of technical errors, including the following types of errors:
    - Spelling, grammar, and punctuation errors.
    - Inaccurate content materials or information.
    - Wrong answers or explanations.
- The materials provide digital elements that are complete and without technical errors. For example, in Unit 2, Concept 1,
- Lesson 3 Rocks, contains a colorful video that plays without glitches and offers captions as well as additional languages for learners.

Discovery Education Science Techbook for Texas
Grade K

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 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 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.

- Materials integrate digital technology and tools that support student learning and engagement. The program is based on a digital platform that includes all the lessons in a slideshow format along with videos, interactive game-like activities, assessments, flashcards, glossaries, and texts, all embedded into the slideshows. Lessons can also be assigned to individual student devices.
- In every lesson, student digital components include embedded tools, such as a digital whiteboard, in which students can draw and take notes; use a text-to-speech (immersive reader) feature for the lesson slideshow; access a glossary that contains images, videos, and text for every word including the immersive reader option; and take the digital assessments at the end of every lesson. For example, in Unit 1, Concept 2, Lesson 3, Magnets, an interactive lesson consists of students using digital tools to help fix a robot that has broken down. Within the student edition of this interactive lesson, materials provide more digital resources, including a reading passage.

Discovery Education Science Techbook for Texas
Grade K

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

- Materials integrate digital technology in ways that support student engagement with science and engineering practices. Materials include videos and interactive activities. For example, in Unit 1, Concept 3, Lesson 4, Shadows and Light, materials include a short video on how shadows are made. In Unit 3, Concept 1, Lesson 3, The Pattern of Day and Night, students can observe a virtual simulation of the cycle of day and night with two clocks; one showing elapsed time and the other showing the actual time of day. Then, the interactive activity features a couple of questions that students answer to demonstrate understanding.
- Materials provide interactive simulations and models for students to explore science and engineering practices in a virtual environment. For instance, in Unit 1, Concept 2, Lesson 3, Magnets, students drag and drop different objects to close an electrical circuit to repair a robot. If an object does not belong in a circuit, such as a post-it note, the virtual simulation does not let the student drop the object on the spot.

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

- Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate. For example, in the Student Techbook, the menu includes a feature called Studio, which allows student-to-student collaboration using a digital whiteboard. Students can use and share the whiteboard with others in their classroom or school. Students also have access to open other whiteboards that have been shared with them. The studio feature also allows students to have class discussion topics via written responses. Peers can review one another's responses and give feedback. Students can open a chat to communicate with the teacher as well if the teacher turns this feature on.

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

- The digital materials are accessible and compatible with multiple operating systems and devices. Since materials are web-based, students and teachers can access them through any device connected to the internet. At the bottom of the main page, there is a link to "Check Requirements" that provides the following information: "Discovery Education works on desktop and laptop computers with a wide range of browsers. We recommend you use the most recent version of the following browsers to ensure the best experience. Google Chrome, Mozilla Firefox, Safari, Microsoft Edge. While we don't support specific devices by name, we ensure that our products work with devices using the most recent version of the following Operating Systems: ChromeOS, Android, and iOS."
- Materials integrate digital technology that is compatible with a variety of learning management systems. In their Program Guide, materials specify that "Science Techbook is compatible with a variety of learning management systems" and recommends visiting their website to see the latest LMS integrations. On their website, discoveryeducation.com, information states it is compatible with Brightspace, Canvas, Classlink, Clever, Google, Google Classroom, Infinite Campus, Microsoft Teams, MCEdCloud, Microsoft 365, SAML, and Schoology.

Discovery Education Science Techbook for Texas
Grade K

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 provide a rationale for the age-appropriateness of digital and online components. On the DE website, discoveryeducation.com, on the tab labeled “Curriculum,” under “Science,” the materials describe how they developed their digital technology and online components in a way that makes them developmentally appropriate for the grade level: “The phenomena and content used in Science Techbook is provided through our dynamic K–12 learning platform. Vetted by curriculum experts and differentiated by grade level, it mirrors students' interests and helps them make relevant, lasting connections between science, the classroom, and their everyday lives.”
- The Program Guide explains how different digital components are developmentally appropriate for the grade level. For example, "… (Science Techbook) provides highly engaging, standards-based content guaranteed to motivate students to delve deeper into science… These include hands-on activities and labs, virtual labs, interactives, videos, animations, images, audio, online models, informational text, and more." It adds, "QR codes within teacher and student materials provide easy access to embedded technology and a seamless instructional experience between the digital and print program."
- Digital technology and online components are aligned with the grade-level scope and approach to science knowledge and skills progression. For example, in the Table of Contents, the materials specify the grade-level TEKS covered in each unit and include links to each lesson that targets

the given TEKS. Additionally, every grade level provides a Course Overview section with related TEKS and ELPS for online and digital components within the Teacher's Guide.

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

- Materials provide teacher guidance for using embedded technology to support and enhance student learning. Materials include a video showing how the digital Techbook is structured and how to access all its features. On the main page of the Teacher Techbook, there is another video that shows all the features of the program. Each unit in the Teacher's Edition begins with the concept structure and pacing. Within every lesson, materials offer clear instructions on how to use the embedded technology. For example, in multiple video lessons, the teacher's guide provides a "Pause and Play" strategy to support students in reflecting on the video content. Also, the program guide has a section called Immersive Reader, which instructs the teacher to use this feature to support struggling readers, English learners, or any student needing more accessible content.
- Materials provide specific teacher guidance for embedding the technology within lessons and assessments. Throughout the Teacher Editions, QR codes and short links directly connect to digital resources to deepen learning through rich media and assessment opportunities.

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

- Materials include resources for parents and caregivers on supporting student engagement with digital technology and online components. For example, under Course Materials, there is a letter for parents or guardians providing information on how to access materials. It explains how to access the digital platform by scanning the QR codes on the students' books and logging in with their student username and password. Also under Course Materials, the Caregiver Course Overview provides ideas to support students' learning at home, including the Discovery Education website that can be used for additional practice. For example, materials suggest using the website https://puzzlemaker.discoveryeducation.com/ to have access to different games to practice the vocabulary learned.
- Additional resources for families available on the publisher's website address the program access and usability. For example, the Discovery Education Guide for Families describes the product in detail, including how to access it and use tools to organize content. Similarly, the Discovery Education Family Resources includes tools to support navigation of the software; provides additional resources available, including videos, text, audiobooks, and a stress reduction program; and instructions for students to conduct research in DE.