Discovery Education Science Techbook for Texas Grade 6

Discovery Education Science Techbook for Texas Grade 6 Executive Summary

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

Grade	TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
Grade 6	100%	100%	100%	100%
Grade 7	100%	100%	100%	100%
Grade 8	100%	100%	100%	100%

Section 2. Instructional Anchor

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

Section 3. Knowledge Coherence

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

Section 4. Productive Struggle

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

Section 5. Evidence-Based Reasoning and Communicating

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

Section 6. Progress Monitoring

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

August 2023

Discovery Education Science Techbook for Texas Grade 6

- 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 some guidance on fostering connections between home and school.
- The materials include listening, reading, writing, and speaking supports to help Emergent Bilinguals meet grade-level science content expectations.
- The materials include some 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 6

Indicator 2.1

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

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

Evidence includes but is not limited to:

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

- The materials provide multiple opportunities to develop grade-level appropriate scientific and engineering practices, as outlined in the TEKS in a variety of lesson types, including STEM Project Starters, found in all concepts. For example, in a grade 6 lesson, "Matter and Properties," the Unit Planner identifies the TEKS 6.1.B, 6.1.D, 6.3.A, and 6.3.B as standards taught in Concept 1. These TEKS correlate with the Scientific and Engineering Practices (SEPs). The materials provide multiple opportunities for students to practice grade-level appropriate SEPs. Each concept provides teachers with a 5E model that includes having students explore the various science concepts. Science and engineering practices (SEPs) are introduced in the Engage lesson, practiced/developed in the Explore lessons, and assessed in the Explain lesson and Extension

lessons. For example, in a grade 6 lesson, “Earth’s Spheres,” the materials introduce a phenomenon, and students develop questions and conduct hands-on activities to investigate the phenomena. Later in the lesson, students revise their explanations based on their acquired knowledge.

- The materials provide multiple opportunities to show mastery of grade-level appropriate SEPs. In a grade 6 lesson, “Cells,” the scope and sequence allows for the following: observation of cells under a microscope, investigation of the theory of cells, exploration of cells and their characteristics, and explanation of cells by having students revisit their cell exploration from the beginning of the Concept and revising it, elaborating how cell theory led to stem cell research, and evaluating to show mastery of the unit. Each Concept includes an Evaluate section for students and a Summative Assessment Concept Check-In.
- Extended opportunities to practice the engineering design processes are available in multiple lessons. These additional practices include opportunities to design solutions to problems, evaluate them, and revise them. Additionally, investigations provide opportunities to practice analyzing data and building models. There are multiple opportunities for students to develop, practice, and demonstrate mastery of the grade-level TEKS.
- The program design contains an intentional SEP Scope and Sequence. Additionally, at the course level, teachers can use the searchable TEKS functionality to select specific SEPs and identify which concepts they are introduced, spiraled, and assessed in. Teachers can click the “TEKS” button on the course landing page, select an SEP standard, click the downwards arrow, and navigate directly to the aligned concepts. From this view, teachers can see how the practices are spiraled throughout the course by clicking Science Techbook for Texas - Grade 6 > Course Landing Page > TEKS. The materials also outline how students will use the SEPs. The Unit Planners provided for each unit give a big-picture view of the focus SEPs of each concept in that unit. This view allows teachers to see which SEPs will be targeted across the unit, showing where the materials provide opportunities for students to develop, practice, and demonstrate mastery of the SEPs.

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

- Science Techbook for Texas is intentionally designed to provide multiple opportunities to connect overarching concepts using the recurring themes. The Grades 6–8 Program Guide includes TEKS alignment and the recurring themes represented throughout the curriculum. The materials present science themes in the Concept Lesson Planner and in the Overview. For example, the grade 6 lesson, “Observing the Water Cycle,” introduces the theme of Structure and Function. The materials then revisit structure and function throughout the sequence of lessons.
- Materials provide opportunities for students to use recurring themes in making connections between and within overarching concepts. For example, in the Forces concept (Unit 2: Forces and Energy > Concept 1: Forces > Lesson 1: Observing Objects Falling in a Vacuum), students are introduced to the Recurring Themes and Concepts (RTC) of Causes and Effects in a physical system. They use a graphic organizer to develop initial ideas about the factors, mechanisms, and effects they observed about a feather and cube dropping in a vacuum. After students investigate the science behind forces throughout the concept, they reflect on how the RTC helped them to better understand the phenomenon (Unit 2: Forces and Energy > Concept 1: Forces > Lesson 5: Third Law: Force Pairs) before developing a final model and explanation of the causes and effect

of the feather and cube falling in a vacuum. In the Natural Resources concept, students return to the RTC of Cause and Effect as they examine the management of natural resources in Earth systems (Unit 3: Earth and Space Systems > Concept 3: Natural Resources > Lesson 1: Observing Sustainable Dairy Farming). Throughout the concept, they deepen their understanding of the importance of sustainable practices and the consequences of managing natural resources improperly. In the Ecosystem Relationships concept (Unit 4: Cells, Ecosystems, and Variation > Concept 2: Ecosystem Relationships > Lesson 1: Observing Changes in Bee Populations), students apply the RTC of Cause of Effect in systems to investigate the possible causes and effects of the declining bee population in an ecosystem. They continue to use this RTC throughout the concept to understand how ecosystem factors and interactions can influence organism populations.

- The materials include opportunities for students to revisit recurring themes across grade levels. In grades 6–8, students see how structure is related to function. Using this theme in grade 6, students study cell theory and the specialization of cells. In grade 7, students investigate how cells are part of an organization that makes up the human body. Students explore how cells can protect against infectious diseases. In grade 8, students further connect this learning with the investigation of cell parts and their functions.

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

- Science Techbook for Texas is intentionally designed to provide multiple opportunities to connect overarching concepts using the recurring themes. The Grades 6–8 Program Guide includes TEKS alignment and the recurring themes represented throughout the curriculum. The materials present science themes in the Concept Lesson Planner and in the Overview. For example, the grade 6 lesson, "Observing the Water Cycle" introduces the theme of Structure and Function. The materials then revisit structure and function throughout the sequence of lessons.
- Materials provide opportunities for students to use recurring themes in making connections between and within overarching concepts. For example, In the Forces concept (Unit 2: Forces and Energy > Concept 1: Forces > Lesson 1: Observing Objects Falling in a Vacuum), students are introduced to the RTC of Causes and Effects in a physical system. They use a graphic organizer to develop initial ideas about the factors, mechanisms, and effects they observed about a feather and cube dropping in a vacuum. After students investigate the science behind forces throughout the concept, they reflect on how the RTC helped them to better understand the phenomenon (Unit 2: Forces and Energy > Concept 1: Forces > Lesson 5: Third Law: Force Pairs) before developing a final model and explanation of the causes and effect of the feather and cube falling in a vacuum. In the Natural Resources concept, students return to the RTC of Cause and Effect as they examine the management of natural resources in Earth systems (Unit 3: Earth and Space Systems > Concept 3: Natural Resources > Lesson 1: Observing Sustainable Dairy Farming). Throughout the concept, they deepen their understanding of the importance of sustainable practices and the consequences of managing natural resources improperly. In the Ecosystem Relationships concept (Unit 4: Cells, Ecosystems, and Variation > Concept 2: Ecosystem Relationships > Lesson 1: Observing Changes in Bee Populations), students apply the RTC of Cause of Effect in systems to investigate the possible causes and effects of the declining bee population in an ecosystem. They continue to use this RTC throughout the concept to understand how ecosystem factors and interactions can influence organism populations.

Discovery Education Science Techbook for Texas
Grade 6

- The materials include opportunities for students to revisit recurring themes across grade levels. In grades 6–8, students see how structure is related to function. Using this theme in grade 6, students study cell theory and the specialization of cells. In grade 7, students investigate how cells are part of an organization that makes up the human body. Students explore how cells can protect against infectious diseases. In grade 8, students further connect this learning with the investigation of cell parts and their functions.

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, as outlined in the TEKS, for students to ask questions, plan, and conduct classroom, laboratory, and field investigations, and engage in problem-solving to make connections across disciplines and develop an understanding of science concepts. For example, grade 6 materials provide regular opportunities for students to raise questions about phenomena. In a lesson about" Variation and Survival," the materials guide students to observe the phenomenon of peppered moths and develop a driving question board of questions they would need to know to figure out how this phenomenon takes place. In a grade 6 unit, "Pure Substances and Mixtures," the materials instruct students to complete investigations through predictions and a lab, Investigating a Cartesian Diver.
- Hands-on learning is a foundational component of Science Techbook and authentic science learning experiences. Students investigate scientific questions and phenomena through a variety of hands-on lessons in each concept. These experiences provide students opportunities to plan and conduct experiments, define and identify variables, develop models using manipulatives, analyze authentic data sets, and collect data to answer questions about phenomena. These instructional opportunities encourage students to use skills from other disciplines, such as ELA and Math. Hands-on lessons and STEM Projects also include experiences that allow students to apply the steps of the engineering design process to solve real-world problems, guiding them to make cross-curricular connections.
- The materials include a variety of hands-on lesson types, including step-by-step procedures for students to follow or more open-ended lessons that support students in developing their own procedures for their investigations. This program was intentionally designed to support student inquiry and questioning opportunities, followed by investigations and STEM projects to answer questions and allow students to make connections to real-world contexts. For example, within a grade 6 unit on "Forces and Energy," the lesson "Marble Madness" guides students to use a handout to plan, record, and conduct their investigation on how unbalanced forces affect the speed and direction of an object's motion. In a grade 6 lesson called "Creating a Catapult," students design, build, and test a solution to launch objects to a precise location, such as a feeder tray for a squirrel experiment.

Discovery Education Science Techbook for Texas Grade 6

Indicator 2.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- The materials use phenomena as a central anchor that drives student learning across grade-level content in each discipline (earth/space, life, physical science). Students examine phenomena and develop content knowledge as they work to construct explanations of the phenomena.
- The materials embed phenomena and problems across all lessons by including an authentic phenomenon in Lesson 1 for every concept within every unit. In a grade 6 lesson, "Observing the Water Cycle," the materials guide students to make observations and create a student question board based on what they have observed. The materials then scaffold the content, guiding students to explain how they would develop their first model of the water cycle. The materials further guide students to continue building and developing their knowledge through hands-on activities, interactive computer modules, and readings.
- The materials provide intentional opportunities for students to develop, evaluate, and revise their thinking as they engage with phenomena and define and solve problems. After the students examine the phenomena in Lesson 1, the materials then guide the students to reconsider the phenomenon in the exploration part of the lesson (Lesson 2) through a hands-on investigation. The materials then return students to their initial observations and explanations

after they have acquired new science concepts during the Phenomenon Check-In portion of the lesson.

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

- The materials provide opportunities for students to leverage knowledge and experiences related to the phenomena. Teachers have guidance provided in the lesson planning section of each unit to help students recall previous knowledge. Every concept and lesson included in Science Techbook for Texas, Grade 6, begins with a "Setting the Purpose" section, designed to allow teachers to leverage and solicit students' prior knowledge of key science ideas before the main learning objective of the lesson. In addition to accessing prior knowledge for every lesson of every concept, the first lesson in each concept, the Engage lesson, expects students to discuss with one another their prior knowledge and experience with the presented phenomenon. Often students' prior knowledge and experiences are solicited through discussion opportunities and or small group strategies. For example, in a grade 6 lesson, "Forces and Energy," "Setting the Purpose" directs teachers to "Ask students: Do you think that a feather and a cube can fall at the same speed? Have students turn to a partner and share their thoughts. Then, have a few students share what they and their partner discussed."
- Across all concepts, common, research-based misconceptions are included in teacher-facing lesson planning sections. Most of these misconception teacher notes include an explanation or practical strategy to support students in overcoming barriers to conceptual development. In the grade 6 lesson, "Investigating States of Matter," "Students may correctly point out that many solid objects can change shape and size when a force is applied to them. A cloth shirt is a solid and changes shape with the body inside it. A sheet of paper can be crumpled into a ball or folded into the shape of a simple box. Explain that the characteristic properties of solids describe them at the level of molecules or other particles. While a cloth shirt can change shape and size, the individual molecules that make up fabric strands cannot be compressed. Students sometimes confuse the properties of volume, which is the amount of space that matter fills, and shape, which is defined by the outer border of the matter. To demonstrate volume and shape, pour a sample of water from a tall container, such as a bottle, into a short but wide container, such as a bowl or pan. Lead students to recognize that the volume of water remains the same, but its shape changed to match its new container." This note clarifies students' misconceptions by leading them to recognize that the volume of water remains the same, but its shape changed to match its new container.
- The materials provide additional student and teacher background knowledge in the Unit Resources section, "Background Knowledge." The materials include what teachers need to know and what students should know, and the misconceptions they may have. While there is information provided to help address the most common misconceptions in each Lesson Planning document, these are dispersed throughout the lessons. It would be helpful to the teacher to have a misconceptions document at the beginning of each Concept that identifies the most common misconceptions and how to address them from the very beginning because students may address a misconception before it is brought up in the lesson planning document.

Discovery Education Science Techbook for Texas
Grade 6

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

- The materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon or engineering problem. The Unit Planner for each unit provides a rationale for the phenomena, concept objectives, and key vocabulary. Each Concept section includes a "Teacher Overview." For example, in a grade 6 lesson, "Forces," the materials provide teachers with a list of objectives that students should be able to complete by the end of the lesson, such as "investigate and identify evidence of different types of forces, define and identify examples of different types of forces, investigate patterns in forces between two interacting objects, and explain the pattern in forces between two interacting objects."
- The materials clearly outline the scientific concept objectives and goals behind each phenomenon for the teacher at the lesson level. Each lesson includes a "Lesson Planning" section which includes the goals and sets the purpose for the lesson. Each lesson includes student objectives.
- The materials identify the student learning goal(s) behind each phenomenon or engineering problem. For example, in a grade 6 lesson, "Observing Objects Falling in a Vacuum," the materials list the student objectives as "I can observe a metal cube and a feather falling in air and a vacuum, ask questions about them, and develop initial models about them."

Discovery Education Science Techbook for Texas Grade 6

Indicator 3.1

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- Materials connect new learning to previous and future learning within and across grade levels. Materials provide an overview of the vertical alignment, which can be found in the *6-8 Program Navigation and Vertical Alignment Guide*. For example, materials scaffold the concept of Matter across grades 6 through 8. In the grade 6 Matter and Properties unit, Identifying New Substances concept, materials focus on TEKS 6.6.E "Identify the formation of a new substance by using the evidence of a possible chemical change, including production of a gas, change in thermal energy, production of a precipitate, and color change." In the grade 7 Matter and Solutions unit, Physical and Chemical Changes concept, the lessons build upon grade 6 knowledge and focus on TEKS 7.6.C, “Distinguish between physical and chemical changes in matter." In the grade 8 Matter and Reactions unit, Chemical Reactions concept, materials focus on TEKS 8.6.B, “Use the periodic table to identify the atoms involved in chemical reactions” and 8.6.E, “Investigate how mass is conserved in chemical reactions and relate conservation of mass to the rearrangement of atoms using chemical equations, including photosynthesis."
- Materials guide students to connect their knowledge and skills within units in their grade level. For example, in the grade 6 Earth and Space Systems unit, Concept 1: Earth Systems, students begin observations and investigations on Earth's spheres. At the beginning of the lesson,

students make a statement about why the phenomenon is occurring. Throughout the lessons, students have opportunities to revise and edit their explanations. This allows students to build and connect their knowledge throughout the entire unit.

- Materials present content in a way that builds complexity within and across units. Materials present each concept in the 5E format. Each concept begins by introducing a real-world phenomenon to engage students and encourage them to ask questions. This is done through hands-on investigations, images, data sets, or multimedia in the Engage lessons. As students progress, they revisit the phenomenon to deepen their understanding. In the Explore section, students engage in various activities such as hands-on investigations, digital interactive experiences, multimedia analysis, and integrative literacy learning. In the Explain phase, students provide explanations supported by evidence and scientific reasoning to explain the phenomenon. The Elaborate phase involves connecting and applying concepts to real-world experiences, including STEM careers and projects. The Evaluate section consists of summative assessments that allow students to apply their knowledge. For example, in the grade 6 Earth and Space Systems unit, Seasons and Tides concept, materials engage the students with phenomena videos about changing seasons and tides. Materials then allow students to explore these ideas in a digital interactive activity about tides. The materials guide students in the *Explaining Tides* lesson to revisit their initial observations about tides, revise their models, and reflect on and describe them. The Elaborate lesson, *Harnessing Energy from Tides,* teaches students how the tides apply to STEM careers. Finally, in the Evaluate section, students summarize the key concepts that they have learned.

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

- Materials include a progression of concrete and then representational before abstract reasoning when presenting concepts. In the grade 6 concept Pure Substances and Mixtures, the *Observing a Rainbow Column* lesson provides students with a concrete phenomenon to investigate and develop questions related to density, substances, and mixtures. Students then conduct concrete, hands-on investigations to understand the phenomena better. Materials then guide students to revisit and revise questions. Materials repeat this for each concept until the phenomena are revisited and revised a final time. The extension lessons guide students to create a plan to separate mixtures and to research useful processes to separate mixtures, providing additional opportunities for deeper understanding.
- Materials ensure students experience a phenomenon or problem before utilizing models as a tool for reasoning. Specifically, in each unit, materials include a hands-on activity within the lesson sequence. This hands-on activity happens before students complete further investigation of the phenomena. In the grade 6 Cells, Ecosystems, and Variation unit, Concept 3: Variation and Survival guides students to begin the lesson by observing peppered moths. Students create a statement about the phenomena before continuing their investigation. The remaining lessons provide opportunities for continued learning, revision, and application of the phenomena in real-world problems.
- Materials sequence instruction in a way that activates or builds prior knowledge before explicit teaching occurs that allows for increasingly deeper conceptual understanding. Materials present students with a phenomenon and guide students to share personal experiences and ideas and then engage in inquiry-based exploration before there is any explicit teaching. For example, a grade 6 lesson on States of Matter in the Matter and Properties unit focuses on TEKS 6.6.A

"Compare solids, liquids, and gases in terms of their structure, shape, volume, and kinetic energy of atoms and molecules." In Lesson 1, materials present the students with a model of the water cycle and ask the students to make observations, develop a driving question board, and create an initial model of the phenomenon. In Lessons 2–3, the materials provide the students with opportunities to explore the concepts behind the phenomenon they observed in the first lesson. Materials state the objectives for Lessons 2 and 3 as "I can investigate the properties of the three common states of matter" and "I can investigate the effect of temperature on states of matter." In Lesson 4, students analyze their prior experiences and data from prior lessons to formulate scientific ideas. Students have those ideas backed up with explanations in this portion of the materials. Materials state the objective for Lesson 4 as "I can explain states of matter in terms of properties and kinetic energy."

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

- Materials clearly provide instruction in grade-specific core concepts. Each concept in each unit consists of several lessons that follow the 5E (Engage, Explore, Explain, Elaborate, Evaluate) instructional model. This allows for a clear presentation of grade-level-specific core concepts and a meaningful integration of Recurring Themes and Concepts (RTCs) and Science and Engineering Practices (SEPs).
- Materials clearly provide instruction in RTCs and SEPs. In the first lesson of each concept, the materials present the students with a phenomenon. Materials ask the students to think about the phenomenon using one of the recurring themes. For example, in the grade 6 unit about Matter and Properties, the States of Matter concept guides students to use the recurring theme of structure and function to think about the water cycle. In that same lesson, materials ask the students to engage in the SEPs of modeling.
- Materials accurately present core concepts, RTCs, and SEPs. Materials are free from scientific inaccuracies across lessons, units, and grade levels. Materials present current scientific content that reflects the most widely accepted explanations. For example, in the grade 6 unit about Earth and Space Systems, the lesson *Rocks Around the Clock* explains how rocks can move through the rock cycle in different ways.

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

- Materials provide guidance for the teacher on specific learning targets for each concept, located in the Teacher Overview section. For example, in the grade 6 Matter and Properties unit, Concept 1: States of Matter lists the Concept Objectives: "Make observations of the water cycle, ask questions, and develop an initial model about it. Investigate the properties of the three common states of matter. Investigate the effect of temperature on states of matter. Explain states of matter in terms of properties and kinetic energy. Revise a model of the water cycle based on evidence gathered from investigations. Describe how temperature and states of matter apply to STEM careers. Summarize key ideas about states of matter."
- The Scope and Sequence in the grades 6-8 Program Guide lists the TEKS addressed and their sequence for each grade. Materials include guidance for the student on specific learning targets for each lesson. Each lesson includes a Student Objective for students to revert to while reviewing the material. For example, in the grade 6 Earth and Space Systems unit, the Observing

Seasons and Tides lesson begins with the Student Objective, “I can make observations of seasons and tides, ask questions about them, and develop initial models of them.”

- Materials include a Vertical and Horizontal Alignment Guide that defines the boundaries of the main concepts that students must master for the grade level or course. This document helps teachers know where the students are coming from and where they are going in their learning.

Discovery Education Science Techbook for Texas Grade 6

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.	PM
3	Materials explain the intent and purpose of the instructional design of the program.	M

Partial Meets | Score 3/6

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

Materials support teachers in understanding of the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices. Materials contain some explanations and examples of science concepts, including some 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 concepts connect across lessons and units within the grade level. Grade 6 materials, for example, provide a Unit Planner for each unit that provides a horizontal guide of concept connections. Materials also provide an overview of the vertical alignment, which can be found in the 6-8 Program Navigation and Vertical Alignment Guide.
- The program is intentionally designed to provide both horizontal and vertical articulation of the grade-level content, recurring themes and concepts, and science and engineering practices, supporting teachers in understanding how new learning connects to learning from previous grades. Materials include a Vertical and Horizontal Alignment Guide that supports teachers in viewing the full scope and sequence across all grade bands (elementary, middle school, and high school.)
- Materials include general background knowledge for teachers regarding the concepts they are teaching. Search functionality, found in the top navigation bar within the product, allows for a teacher to search for additional support to build their own subject knowledge. Filters by grade band allow teachers to look for topics below and above their students' grade level.

Discovery Education Science Techbook for Texas Grade 6

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 background information for teachers that provides explanations and examples of science concepts. For example, a Background Knowledge document is included in the Unit Resources section of each unit for teachers who may need to build their own subject knowledge. This document provides both teacher and student background information about the concepts within the unit.
- While the publisher has provided some lessons that include misconceptions, they are not included in all lessons within the unit. In addition, there is not adequate guidance for teachers and students to address potential areas of misunderstanding. Materials identify common grade-level misconceptions students may have about some science concepts. However, materials do not address these misconceptions or barriers in every lesson, and they are not revisited throughout the unit as the potential area of misconception is revisited. Materials do not include guidance for the teacher on how to facilitate discussion about misconceptions when student explanations are based on incomplete or incorrect information. For example, in a grade 6 lesson, *Types of Forces*, the misconception section states, "Students may think that forces act independently of one another. In fact, combinations of forces often affect the motion of objects. A golf ball rolling across a hill may speed up or slow down due to the force of gravity and, at the same time, may be slowed by friction with the grass and air. The motion of a sailboat is affected by the force of the wind, friction with the water, and Earth's gravitational pull. Students may think that if an object is not moving, then no forces are acting upon it. However, the noncontact force of gravity is always acting on all objects. On Earth, that force attracts all objects toward Earth's center. If an object is not falling downward toward Earth's center, then another force must be pushing the object upward. That force could be the normal force from the surface on which the object is resting." Materials provide no guidance on learning experiences to clarify the misconception.
- Materials do not support teachers in developing their own understanding of more advanced grade-level concepts. While the search functionality allows teachers to search for additional grade bands, it can only be utilized at the unit level, not at lesson levels. There are no linked additional resources for the teacher to deepen their own understanding of concepts and material.

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

- Materials provide a purpose or rationale for the program's instructional design, highlighting its key features. For example, *The Grades 6-8 Program Guide* explains the rationale of the structure of units, concepts, and 5E framework lessons. "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."
- Teacher guidance materials explain the purpose of beginning each unit with a phenomenon. For example, *The Grades 6-8 Program Guide* states, "All concepts begin by focusing on real-world phenomena. These phenomena pull in students and give them a reason to explore the scientific investigations in the concept. Students make observations, ask questions, and develop explanations or models of the phenomena. As they gather evidence during their investigations,

they find answers to their questions and revise their models or explanations. Ultimately, the phenomena increase coherence and make science relevant to students' lives."

- Materials provide a framework explaining the main intent or goals of the program. Materials provide a Program Guide that thoroughly describes the program's instructional approaches and references the researched-based strategies present in the materials. For example, *The Grades 6-8 Program Guide* describes:
    - Use of the 5E Framework
    - Leveraging Phenomenon-Based Learning
    - Role of hands-on learning
    - Role of the science and engineering practices
    - Role of recurring themes and ideas
    - Integrating grade-level content and skills, SEPs, and recurring themes and ideas
    - Role of habits of discussion and productive struggle

Discovery Education Science Techbook for Texas Grade 6

Indicator 4.1

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

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

Meets | Score 4/4

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

Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop 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. The *Grades 6-8 Program Guide* provides teachers an explanation as to why there has been a switch from simply explaining the science concepts to students to allowing the students to examine and explain real-world phenomena on their own. "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 and models."
- Materials provide students with a variety of ways to learn each concept. Students can make observations, complete hands-on activities, and read corresponding articles about the phenomena, application of the concept, and analysis of the concept. For example, in the grade 6

Matter and Properties unit, Concept 3: Identifying New Substances guides students to watch as their teacher demonstrates what happens to steel wool after sitting in hydrogen peroxide for two minutes. Materials then ask students to think about why the phenomenon is occurring and to complete an investigation on their own (adding their data to a chart). Materials give students an opportunity to make their initial claim as to why the phenomena occur and provide students with a supportive reading on chemical changes. The unit ends with a review of their initial claim to the phenomena.

- Materials consistently provide learning activities that support students' meaningful sensemaking. In the Earth and Space Systems unit, the *Observing Lava Flow* lesson states the Student Objective "I can make observations, ask questions, and construct an initial model explaining how rocks form and change through geologic processes within the rock cycle." Materials direct teachers to give students a rock to explore and begin thinking. Then they watch a video of scientists, and the teacher guides a discussion about scientific observations. The materials direct students to list observations from the video and share out. Students then develop questions about the phenomenon. Students work together to develop ten questions and sort them into two categories. Students watch the video again to look for patterns and record. Students then develop a primary model based on what they have learned or observed. Students share, compare and contrast, and mark similarities between their models. Students develop clarifying questions and revisit their models to make changes if they feel they should.

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 opportunities for students to engage in purposeful and targeted activities with grade-level appropriate scientific texts. According to the *Grades 6-8 Program Guide, "*During reading, students stop and make connections, monitor their understanding, and generate questions for sensemaking. After reading, students have opportunities to communicate, respond to, and reflect on scientific ideas from the text." For example, within the grade 6 Earth and Space Systems unit, Lesson 3: *Earth's Spheres*, materials direct students to explain how Earth's spheres compare and interact. Students read passages about the geosphere, hydrosphere, atmosphere, and biosphere. The Techbook provides students with reflection questions and asks them to reflect and discuss. After the reading, materials guide students to complete a drag-and-drop Check for Understanding interactive to show their knowledge.
- Materials provide opportunities for students to engage with scientific texts, including activities, such as pre-reading and vocabulary, to help them develop an understanding of concepts. Materials include key vocabulary and strategies for supporting vocabulary throughout the lessons of each concept. Additionally, materials hyperlink key vocabulary terms in the interactive glossary in student-facing text and the toolbar for easy student access. The interactive glossary can be accessed by clicking on the three dots in the top right corner of the window of the course page or any concept or lesson in the course. For example, in a grade 6 lesson: *Observing Earth's Spheres*, materials include four vocabulary terms hyperlinked to the interactive glossary: atmosphere, biosphere, geosphere, and hydrosphere.
- Teacher materials clearly list an overview of key vocabulary terms for each unit listed by concept in the Unit Planner. For example, in the grade 6 Matter and Properties unit, the Unit Planner identifies the key vocabulary terms for the States of Matter concept: condensation, deposition, freezing, gas, kinetic energy, liquid, melt, solid, sublimation, temperature, vaporize.

Discovery Education Science Techbook for Texas Grade 6

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

- Materials provide opportunities for students to communicate thinking on scientific concepts in written and graphic modes. Materials provide opportunities for students to make their thinking visible through the use of graphic organizers and written responses. Materials provide structures to facilitate the sharing of these written forms to help students refine their thinking. For example, in a grade 6 lesson, *Observing Objects Falling*, within the Forces and Energy unit, students complete a cause-and-effect graphic organizer to record their observations and initial thoughts about the phenomenon. In the grade 6 Earth and Space Systems unit, the lesson *Explaining Lava Flow* directs students to first write a reflection on how their understanding of the phenomenon (a video of lava flow introduced in the Engage portion of the concept) has changed. They then draw a revised model of the rock cycle, applying the new information. Finally, they write a description of their model.
- Materials allow students to make scientific drawings of their observations or records of evidence related to scientific ideas in order to capture and share their understanding of scientific concepts. For example, in the grade 6 lesson *Investigating the Rock Cycle,* within the Earth and Space Systems unit, materials ask students to "Create a drawing and caption for sedimentary rock, metamorphic rock and igneous rock. In the captions, include key ideas about each rock based on the investigation."

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

- Materials provide authentic student engagement and perseverance of concepts through productive struggle while acting as scientists and engineers. Students are expected to use evidence to support hypotheses and claims. When conducting investigations, students return to their predictions after analyzing their data to determine if the data supports their claims. They then construct and present developmentally appropriate written and verbal arguments that justify their data and observations using evidence they acquired. For example, in the grade 6 Matter and Properties unit, the lesson *Explaining the Water Cycle* asks students to revise a model of the water cycle based on evidence gathered from their investigations.
- 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. In Engage, students are expected to act as scientists and engineers by making their own observations of real-world phenomena and design challenges. Students consider a driving question that relates to the phenomenon and is unable to be answered prior to completing the concept lessons. Students return to analyzing the phenomenon throughout the concept with phenomenon check-ins. Finally, in the Explain portion, materials guide students to use the evidence they have collected to support a scientific explanation. For example, in the grade 6 Matter and Properties unit, Concept 2: Pure Substances and Mixtures, the Techbook includes the following:
    - Lesson 1: Students make observations of a rainbow column, ask questions about it, and construct an initial explanation about it. Students develop an initial explanation of the phenomenon.

  - Lessons 2–3: Students engage in activities that build aid in their sensemaking regarding the phenomenon.
  - Lesson 4: Students participate in a “phenomenon check-in” and are asked, “Now that you have explored density, revisit the questions you and your classmates came up with on the Student Question Board about the rainbow column. Now that you have learned about density, revise the explanations that you wrote at the beginning of the concept.”
  - Lessons 5–6: Students engage in activities that build aid in their sensemaking regarding the phenomenon.
  - Lesson 7: Students make final revisions to their explanations of the phenomenon based on evidence gathered from investigations.
- Materials create transfer opportunities for students to take what they have learned and use it flexibly in new situations. In the grade 6 Matter and Properties unit, the lesson *Changes of States* guides students to act like scientists as they investigate how temperature impacts the kinetic energy of molecules. Students complete an interactive digital simulation that allows them to increase or decrease the temperature of liquids to see how the kinetic energy changes. The materials ask students to discuss their data by answering the given questions. Once complete, students then apply what they have learned to the following questions: "Which substance most likely has the strongest attractive forces between its particles: methanol, water, or mercury?"

Discovery Education Science Techbook for Texas Grade 6

Indicator 5.1

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

1	Materials prompt students to use evidence to support their hypotheses and claims.	M
2	Materials include embedded opportunities to develop and utilize scientific vocabulary in context.	M
3	Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.	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 by using the 5E model of instruction. Materials present students with a phenomenon (or an engineering problem) in the Engage lesson of every Concept to produce an initial explanation (or a solution to the problem). In the following Explore lessons, students construct new knowledge. In the Explain lesson of each concept, materials allow students to use evidence to support their claims to improve their initial explanations based on what they learned throughout the concept. For example, in the grade 6 Matter and Properties unit, Pure Substances and Mixtures concept, the Explain lesson guides students to produce an explanation (their claim) to the driving question that was developed from the phenomenon (why do these layers not mix with each other?) "Evaluation Criteria" in the student materials ask students to use evidence to support their claims using Claim-Evidence-Reasoning criteria.
- Materials specifically prompt students to use evidence when supporting their hypotheses and claims. In Explain, materials guide students to provide a final explanation of the phenomenon. Students then review and reflect on the observations and evidence they have collected during the Explore parts of the lessons and revise their explanations. For example, within the grade 6

Forces and Energy unit, the lesson *Explaining Energy Transfer in a Chain-Reaction Machine* prompts students: “Now that you have learned more about types of energy and how energy is transferred, write a final explanation for how energy is transferred in a chain-reaction machine.” In the criteria for success, materials provide students with the following guidance for on-target evidence: “identifies valid and reliable evidence from multiple sources; may include models to support the explanation.”

- Materials provide prompts for students to utilize evidence in their claims. In the *Making New Medicines* lesson, within the grade 6 Matter and Properties unit, students read about superbugs and pharmacologists. Once complete, students then complete an activity and analyze a graph, "Effects of Palliative Chemotherapy on Survival Time." Students then write a conclusion about the use of chemotherapy as treatment; this includes a prompt that says, "Support your conclusion with evidence from the graph."

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

- The Techbook includes embedded opportunities for students to utilize vocabulary after having a concrete or first-hand experience. For example, in the grade 6 Cells, Ecosystems, and Variation unit, the lesson *Observing Cells under a Microscope* introduces students to why microscopes are used in science investigations. Students then conduct an investigation using specimen cards to look at cells on a microscopic level; this gives students a first-hand experience with cells. At the end of the lesson, materials prompt students: “Now that you have made some observations and recorded your questions, construct an initial explanation that shows what scientists can learn from observing organisms at the cellular level."
- Materials present scientific vocabulary using multiple representations. The lessons have vocabulary words in color and hyperlinked to the glossary link for the words. The glossary includes audio pronunciation, written definitions, key context, real-world images, and video explanations of the words used in context. Some words also include animations. Students can also access the entire glossary using the three-dot drop-down menu on the upper right corner of the screen.
- Materials provide opportunities for students to apply scientific vocabulary within context. As students build a conceptual understanding of the key vocabulary, teacher materials include an indication, at the point of use, when to bring in and facilitate students' proper use of academic vocabulary during the lesson. For example, the Lesson Planning Document for the grade 6 lesson *Solids, Liquids, and Gases*, within the Matter and Properties unit, provides teachers with the following instructions, “After students understand the science ideas involved with key vocabulary terms melt, vaporize, condensation, sublimation, and deposition, introduce the terms and prompt them to continue using them as they engage with the content in this lesson.” In the analysis section of the same lesson, students complete the following writing prompt. “Solder is a metal wire that can be melted to join circuit boards, make jewelry, and connect electrical wires. Describe the changes to the metal particles as they change from a solid to a liquid to a gas. Use all words and phrases from the word bank in your response. word bank: boiling point, kinetic energy, melting point, temperature, vaporize.”

Discovery Education Science Techbook for Texas Grade 6

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. Research-based SOS strategies found in the program expect students to share their ideas with one another as they synthesize and deepen their understanding of the grade-level content. For example, in the grade 6 lesson *Solids, Liquids, and Gases*, within the Matter and Properties unit, students engage in the SOS strategy called 6 Word Story. "Tell students that they are going to tell the story of this lesson using only six words. Stories can be complete sentences, a phrase, or series of words. When complete, ask several students to share and explain their stories. Close the lesson by asking students to share and describe their stories with one another. The class may then vote on stories in different categories, such as most creative, best summary of the content, and most humorous."
- Materials integrate argumentation and discourse within stages of the learning cycle. Materials guide students to conduct grade-appropriate academic discussions to analyze data and evidence to build their conceptual understanding of each concept. Across the program, these opportunities are highlighted by discussion prompts, as well as additional teacher questioning prompts found in the teacher materials. Materials introduce students to constructing an argument for their own interpretation of the phenomena they observe. Materials provide instructional support to help students go beyond simply making claims. For example, in the grade 6 Matter and Properties unit, the lesson *Solids, Liquids, and Gases* provides students with opportunities to engage in discourse at four different points in the lesson. Materials provide the following question prompts:
    - "Discuss your ideas about the following questions: How does the kinetic energy of the particles in the ice compare to those in the liquid soda? How is it possible for so much gas to fit into a bottle of soda? Why are some things solid at room temperature while others are liquids or gases?
    - Think about what you read and discuss these questions: Is it possible for iron to exist as a gas? How do you know? How are particles arranged in a solid, liquid, and gas?
    - Think about what you read and discuss these questions: What does temperature measure in a substance? What happens to the temperature and molecules in a substance during condensation?
    - Discuss these questions using evidence from the reading: How do the attractive forces and kinetic energy of molecules explain the states of matter? What terms are used to describe the changes in the state of matter as it heats up or cools down?"
- Materials offer teachers guidance on when discourse should occur. In the grade 6 Forces and Energy unit, the lesson *Force, Mass, and Transportation* guides students to gather information about how spacecraft travel through an article and videos. The Lesson Planning document suggests teachers "have students read the text, watch the videos, and answer the following discourse questions. This can be done individually or in pairs. It also could be done in groups, with students brainstorming as many ideas as they can and submitting their best three. Encourage student groups to share their ideas with the full class if time permits." These questions scaffold how force and mass impact transportation.

Discovery Education Science Techbook for Texas Grade 6

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.

- Materials provide instruction for how to construct and present a verbal or written argument to problems using evidence acquired from learning experiences. The Techbook uses the 5E model of instruction to present students with a phenomenon or an engineering problem in the Engage lesson of every concept. In the following Explore and Explain lessons, students construct new knowledge. In the Evaluate lesson of each concept, materials guide students to construct developmentally appropriate written and verbal arguments that justify explanations of phenomena based on what they learned throughout the concept. For example, in the grade 6 Forces and Energy unit, the lesson *Explaining Energy Transfer in a Chain-Reaction Machine* prompts students: "Now that you have learned more about types of energy and how energy is transferred, write a final explanation for how energy is transferred in a chain-reaction machine." In the criteria for success, materials provide students with the following guidance for on-target evidence: "identifies valid and reliable evidence from multiple sources; may include models to support the explanation."
- Materials allow students to create a written and verbal justification for their claims. For example, in the lesson *STEM Project Starter: Useful Processes*, within the grade 6 Matter and Properties unit, students research how mixtures are separated using industrial, commercial, or environmental processes. Students create a poster based on their research and include three processes with an explanation and illustration for how each process impacts our everyday life. Students then present their research to the class.
- Materials provide criteria for developmentally appropriate arguments to explain a phenomenon or defend a solution to problems using evidence acquired from learning experiences. Materials provide embedded rubrics or criteria for success throughout the lessons. These rubrics include detailed criteria for students when engaging in arguments from evidence. For example, in the grade 6 Forces and Energy unit, the lesson *Explaining Energy Transfer in a Chain-Reaction Machine* includes a rubric for students with the "on-target" scale as follows:
    - "Claim: states an answer to a question or scientific explanation of the phenomenon that represents the relationships between variables or components of the phenomenon
    - Evidence: identifies valid and reliable evidence from multiple sources; may include models to support the explanation
    - Reasoning: shows how or why the evidence supports the claim and describes why the evidence is adequate or not adequate to support the claim."

Discovery Education Science Techbook for Texas Grade 6

Indicator 5.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Materials provide teachers with possible student responses to questions and tasks. Teacher materials provide correct responses for all prompts, including discussion prompts and formative and summative assessments in the program. For example, in the grade 6 Cells, Ecosystems, and Variation unit, the Lesson Planning document for the lesson *Moths of a Different Color* provides the teacher with questions and possible student responses. "Think about the impact that a change in the environment had on the moth population. What are other ways humans can change the environment? How will that affect the traits in a population? Sample response: Humans affect species by destroying their habitat. Cutting down trees, overfishing the oceans, releasing chemicals into the water, and burning fossil fuels all impact where species can live. When these environmental changes occur, those individuals with beneficial variations will have a better chance of surviving than those without them."
- Materials provide teacher responses to possible student responses, including how to build on students' thinking. Each Lesson Planning document provides information in the Misconceptions and Differentiation sections. This information provides some teacher responses to student thinking and responses. Formative assessment items, found in the Check for Understanding section in Explore lessons, provide scaffolded feedback directly to students when they indicate

incorrect or partially incorrect responses. For example, within the grade 6 Matter and Properties unit, the Check for Understanding portion of the lesson *Investigating Chemical Changes* provides the following feedback when students select incorrect answers: “Not quite. Remember that the signs of a chemical change include changes in texture, taste, and color.”

- Materials provide support for teachers to deepen student thinking through questioning. Teacher materials include questions that deepen student thinking at various points across the lesson. For example, in the grade 6 Matter and Properties unit, the lesson *Investigating States of Matter* includes in the Setting the Purpose section of the Lesson Planning document the following directions for the teacher:
    - “Have students read the introductory paragraph. Then ask students to turn and talk to share their prior knowledge, experiences, or ideas concerning the three common states of matter and the differences among them. Tell students that they will be investigating the three states of matter in this activity.
    - Discuss your ideas about the following questions: What things around you are made of matter? Sample response: Everything you can touch is made of matter, including solids, liquids, and gases, such as the air. What is matter? Sample response: Matter is the “stuff” that makes up the world around us. It also takes up space. How do the different states of matter compare? Sample response: Solids keep their size and shape. Liquids can be poured and have no definite shape, but they keep the same volume. Gases have no definite size or shape.”

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

- Materials have built-in scaffolding for concept and vocabulary development in the design of the learning sequence by using the 5E model of instruction. All concepts start with Engage, a phenomenon (or an engineering challenge) that provides opportunities to elicit students' prior knowledge. Carefully sequenced Explore activities provide students with an opportunity to develop new vocabulary in the context of the scientific concept. Students then have multiple opportunities to use this new vocabulary to explain the phenomenon and answer other emerging questions. For example, in the grade 6 Matter and Properties unit, the States of Matter concept introduces students to a phenomenon (observing a demonstration of the water cycle.) Students then conduct several investigations where they develop new vocabulary (condensation, deposition, freezing, gas, kinetic energy, liquid, melt, solid, sublimation, temperature, vaporize) in the context of changes in the states of matter. They use these new vocabulary words in explaining the phenomenon (Explain and Evaluate lessons) and answering emerging questions (in the Elaborate lesson.)
- Materials provide embedded supports for the teacher in how to introduce and scaffold students’ development of scientific vocabulary. For example, each concept in the materials begins with a Teacher Overview that previews the vocabulary that will be used in the unit. Materials include key vocabulary terms for both the student and teacher at the beginning of each concept. For example, in the grade 6 Forces and Energy unit, the Forces concept lists the following vocabulary terms: applied force, electrical force, force, friction, gravity, magnetic force, magnitude, mass, net force, and normal force.
- Materials provide guidance for the teacher on how to support students' use of scientific vocabulary in context through instructional videos. These videos can be accessed through the Educator Support page of the product website under the Instructional Strategies section within

the Vocabulary Development title. Materials include many videos providing useful guidance for teachers on supporting students in vocabulary development. For example, the video titled "Fold, Draw, Learn" supports students in learning new vocabulary.

- Materials provide guidance for the teacher on how to support students' use of scientific vocabulary in context. For example, throughout the concept, as students build a conceptual understanding of the key vocabulary, the teacher materials include an indication, at the point of use, when to bring in and facilitate students' proper use of academic vocabulary during the lesson. For example, in the grade 6 Lesson Planning document for *Solids, Liquids, and Gases*, within the Matter and Properties unit, materials provide the following guidance for the teacher:
    - “After students have read all sections of the reading, direct them to review what they have read.
    - After students understand the science ideas involved with key vocabulary terms melt, vaporize, condensation, sublimation, and deposition, introduce the terms and prompt them to continue using them as they engage with the content in this lesson.
    - Think about what you read and discuss these questions: What does temperature measure in a substance? Temperature measures the average kinetic energy of the particles in a substance. What happens to the temperature and molecules in a substance during condensation? The temperature decreases, and the molecules slow down or decrease in average kinetic energy.”

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

- Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims. The Educator Supports page of the product website includes guidance for facilitating this process. For example, videos in the Instructional Strategies section of the Educator Supports include various "channels" such as Cites Evidence, Summarizing, Key Ideas and Details, Inference and Predictions, etc.
- Materials provide teacher guidance for student discourse. The *Grades 6-8 Program Guide* explains the use of an icon within lessons that shows when student discourse occurs. For example, within the grade 6 Earth and Space Systems unit, the lesson *Observing Lava Flow* guides students to make observations, ask questions, and construct an initial model of how rocks form and change through geological processes found in the rock cycle. Once students complete their initial model, the Lesson Planning document guides the teacher to allow time for student discourse. In this case, students share their models with a partner and answer the following questions: "What ideas did you have in common? What changes would you make after sharing your ideas?" After this discourse, students revise and edit their initial model.
- Materials provide teacher questions for supporting student discourse and use of evidence in constructing written and verbal claims. Questions push students to use evidence to support their claims in both written and spoken discourse. Students conduct grade-appropriate academic discussions to analyze data and evidence to build their conceptual understanding of each concept. Across the program, Discussion prompts highlight these opportunities, as well as additional teacher questioning prompts found in the teacher materials. For example, in the grade 6 Matter and Properties unit, the Lesson Planning document for *Investigating States of Matter* provides teachers with discussion prompts for students at three different times in the lesson with the following questions:

  - "Discuss your ideas about the following questions: What things around you are made of matter? What is matter? How do the different states of matter compare?
  - Discuss the following with a partner: Name some examples of each state of matter: solid, liquid, and gas. Describe some of the properties of each state of matter.
  - Discuss your findings from the investigation. How are solids and liquids similar and different? How are liquids and gases similar and different? How are solids and gases similar and different? All matter is made of particles. How might the particles in gases explain why gases can be compressed?"
- Materials provide guidance that teachers can use to provide feedback to students while engaging in discourse. Research-based SOS strategies included in the program expect students to share their ideas with one another as they synthesize and deepen their understanding of the grade-level content. Educator notes provide support for teachers on how to facilitate these strategies. For example, in the grade 6 Forces and Energy unit, the lesson *Third Law: Force Pairs* guides teachers to "facilitate a brief class discussion for groups to describe their understandings from the text and share questions with one another." Materials then guide the teacher to use the SOS strategy of "Act it Out" with students, who then "Correct the Error" for a situation. Materials provide teachers guidance on feedback regarding the errors, and students engage in error analysis. "A friend tells you that a force pair occurs when a ball is sitting on the ground because the Earth pulls downward on the ball while the ground pushes upward on the ball. Why is your friend incorrect? Force pairs must be the same type of force and occur between two interacting objects. Earth pulling downward on the ball and the ball pulling upward on Earth is a force pair; both are gravitational forces. The ball pushing down on the ground and the ground pushing up the ball is a force pair; both are normal forces. The friend is confusing force pairs with balanced forces."

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. Materials provide examples of exemplars of student-written and verbal responses. For example, in the grade 6 Matter and Properties unit, the lesson *Observing a Rainbow Column* directs students to record their observations about the phenomenon and write an explanation to show their initial ideas about how the rainbow column works. Materials then guide the teacher to: "Have students form small groups of 3 to 4. Ask students to have each student share their explanations one by one. As each student is sharing, other students should place a check mark (✓) next to similar ideas they have in their own explanations. They should then write down a clarifying question to ask the presenter. Clarifying questions might include those asking for something to be rephrased or added or those asking what an icon or arrow represents. After all, students have had a chance to share their explanations, they should review the feedback they received and decide if they want to make any revisions to their own explanations. Inform students that it is also perfectly fine to incorporate ideas from other students' explanations into their own explanations if they like the ideas. Let them know that scientists often make use of other scientists' ideas to improve their explanations. Ask a student to volunteer to summarize what the class did regarding this phenomenon."
- Materials provide examples of student-created labeled drawings and diagrams. For example, in the grade 6 lesson *Explaining Objects Falling in a Vacuum*, within the Forces and Energy unit,

materials direct students to explain forces using a diagram. “Now that you have learned more about types of forces, force pairs, and force diagrams, draw a final model of how a cube and a feather fall at the same speed in a vacuum. Save a snapshot of your model when you are finished. Then, upload your sketch below.” The Lesson Planning document provides teachers with examples of the graphic model revision and examples of written explanations.

- Materials provide teacher support for facilitating the sharing of students’ finding solutions. Materials provide feedback tips and examples teachers can use to support students throughout the learning cycle. For each lesson, a teacher-only section on Lesson Planning provides guidance to facilitate student discussions and opportunities for students to share their thinking and analyze data to find solutions and develop explanations. For example, in the grade 6 Matter and Properties unit, the Lesson Planning document for *Investigating States of Matter* provides the following guidance for the teacher:
    - Before the investigation: “Have students read the introductory paragraph. Then ask students to Turn and Talk to share their prior knowledge, experiences, or ideas concerning the three common states of matter and the differences among them. Tell students that they will be investigating the three states of matter in this activity. Discuss your ideas about the following questions: What things around you are made of matter? What is matter? How do the different states of matter compare?”
    - After the investigation: “When students finish, have them compare their outcomes and propose explanations for any differences. Then, facilitate a brief class discussion for groups to describe their understanding of the properties of solids, liquids, and gases. Discuss your findings from the investigation: How are solids and liquids similar and different? How are liquids and gases similar and different? How are solids and gases similar and different? All matter is made of particles. How might the particles in gases explain why gases can be compressed?”

Discovery Education Science Techbook for Texas Grade 6

Indicator 6.1

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

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

Partial Meets | Score 1/2

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

Materials include some diagnostic, formative, and summative assessments to assess student learning in a variety of formats. Materials assess student expectations over the breadth of the course and indicate which student expectations are being assessed in some assessments. 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.

- Science Techbook teachers have access to a variety of assessment tools, including Assessment Builder, which comes with a bank of pre-authored items and the ability for teachers to author their own items. However, materials do not provide teachers with pre-written diagnostic assessments to give at the beginning of the course or prior to a unit to assess students' current understanding and assess learning gains. Without a diagnostic assessment, it is difficult for teachers to gain a baseline understanding of students' knowledge that can be compared to summative assessments to see learning gains.
- Materials include formative assessments in a variety of formats to measure student learning and determine the next steps for instruction. They include open-ended and multiple choice questions throughout the Concepts and Units, which all can serve as formative assessment probes. Materials include a “Check your Understanding” section in each core lesson. This section provides the students with one to two questions to assess their current understanding of the content, with direct feedback to students in the materials’ digital format. For example, within the grade 6 Matter and Properties unit, in the lesson *Investigating States of Matter*, if a student submits the incorrect answer to the question “You have a balloon that changes its shape when it rests on a surface. However, the volume of the balloon always remains the same. What can be concluded about the balloon?” materials provide the feedback, “Not quite. Think about the

differences among the three balloons you tested in the activity." Materials also include a "What Did You Figure Out? section of certain lessons, designed to help teachers check student understanding at key points during instruction. The Lesson Planning document provides expected student responses.

- Materials include summative assessments in a variety of formats. Materials provide a summative assessment for each concept. This is called the Concept Check-in. The Concept Check-In contains approximately ten questions, and the questions vary in format and difficulty level. For example, the summative assessment for Unit 1, Concept 1: Solids, Liquids, and Gases consists of ten questions, six of which are multiple choice questions, one short constructed response, one drag and drop, and two hot spots. While materials provide a summative assessment for each concept, the TEKS are assessed in isolation and not as a unit or semester. Materials do not include a pre-written comprehensive Unit assessment to administer to students. Students of this age are capable of and should be exposed to these types of lengthier assessments, as they mirror state testing and various other district-level assessments students may take.
- Materials provide informal opportunities to assess student learning; this occurs during a lesson's Phenomenon Check-In. Students revisit their initial questions using new information they gather throughout the lesson. In the grade 6 Earth and Space Systems unit, the lesson *Types of Tides* guides students to gather information about types of tides. At the end of the lesson, the Phenomenon Check-In guides students, "Now that you have explored tides, revisit the questions you and your classmates came up with on the Student Question Board."

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

- Materials assess all of the student expectations, as outlined in the TEKS, by grade level. Materials contain a cohesive Scope and Sequence that maps out and outlines what TEKS will be taught in a specific course or grade level. Materials clearly indicate alignment in the curriculum for the grade level or subject in a manner that is easily identifiable by the teachers. This information can be accessed in several ways: The *Grades 6-8 Program Guide*, the Table of Contents for each Techbook, and each grade level's landing page includes a link to a full list of the TEKS and which concepts they appear in. At the lesson level, the Teacher Overview page for each concept and each Lesson Planning document lists the TEKS.
- Materials include detailed TEKS-based lesson plans that outline how to teach specific concepts and skills, address specific students' expectations, and provide guidance on assessing student learning. Materials include TEKS-aligned assessments that align the curriculum standards and student expectations and allow teachers to measure student understanding and mastery of the concepts taught.
- Materials indicate which student expectations are assessed. At the end of each concept, materials include a Concept Summative assessment. Materials list the TEKS being assessed at the top of each assessment and are highlighted in blue after each assessment question.

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

- Materials include assessments requiring students to integrate scientific knowledge and science and engineering practices with recurrent themes appropriate to the student expectation being

assessed. For example, in the grade 6 Forces and Energy unit, the lesson *Investigating Types of Forces* includes a hands-on activity that provides students with opportunities to demonstrate the integration of scientific concepts and science and engineering practices with recurring themes and concepts through hands-on investigations and experiences. Materials guide students to investigate and identify evidence of different types of forces.

- The Techbook identifies the standards for the scientific concepts, Science and Engineering Practices (SEPs,) and Recurring Themes and Concepts (RTCs) that are integrated and assessed in each lesson in the List view on every concept landing page in the course. The default setting for the unit is grid view, which is the preferred view for students, so teachers should be sure to change views to see this information.
- Materials provide summative assessment opportunities in the form of performance tasks through projects called "STEM Project Starter." These projects integrate some of the SEPs and RTCs.
- Materials include assessments that require students to integrate scientific knowledge and science and engineering practices with recurring themes. In each concept, materials include Elaborate/Extension lessons. These lessons include summative assessments that require students to integrate the SEPs and RTCs with the scientific knowledge they obtained throughout the previous lessons. For example, in the grade 6 Matter and Properties unit, the STEM Project Starter: Thermal Expansion Joints lesson provides the teacher with the following overview: "In this STEM project, students complete a summative assessment by examining the use of expansion joints in construction and the failure of those joints. Students observe that increases in average temperature affect more than energy use to keep homes and businesses cool, but also can disrupt the movement of people and materials."

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

- Materials include assessments that require students to apply knowledge and skills to a new phenomenon or problem. For example, in the grade 6 Matter and Properties unit, the lesson *STEM Project Starter: Thermal Expansion Joints* provides students with the following prompt: "This bridge does not have a zipper, and it does not have jaws with metal teeth. Instead, it has built-in protection designed to keep the bridge from buckling in hot weather and cracking in cold weather. Expansion joints are an important engineering design feature of bridges, sidewalks, and railroad tracks. How else do engineers protect bridges and other transportation structures from the effects of heat?" Students have to apply the knowledge they gained in the unit to complete this summative assessment.
- Materials allow for students to investigate phenomena, record data, analyze data and use that data in real-world contexts. For example, in the grade 6 Forces and Energy unit, the lesson *Investigating Chemical Energy* guides students to investigate what happens to the temperature when they mix baking soda and vinegar together as well as yeast and hydrogen peroxide. Students record their data and watch a video that introduces exothermic and endothermic reactions. Students then use the knowledge they obtain throughout the lesson to complete a summary of what they have learned about chemical potential energy. Once complete, students apply what they have learned to new and novel contexts and situations. In this lesson, students explain what happens to the temperature and the chemical potential energy of glow fish when they begin to glow.
- Materials include assessments that require students to apply knowledge and skills to a new phenomenon or problem. Each concept features a STEM Careers lesson that allows students to

dive deeper into related content standards as they learn about STEM careers and real-world scientists and engineers that also study the same ideas they just uncovered in their classroom. These lessons have embedded assessment items that drive students to demonstrate the transfer of knowledge. For example, within the grade 6 Matter and Properties unit, the lesson *States of Matter* directs students to describe how temperature and states of matter apply to STEM careers.

Discovery Education Science Techbook for Texas
Grade 6

Indicator 6.2

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

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

Meets | Score 2/2

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

Materials include information and/or resources that provide guidance for evaluating student responses. Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level. Materials 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 resources that provide guidance for evaluating student responses. The *Grades 6-8 Program Guide* states, "Provided rubrics assist students in their development of explanations and models. Students and teachers utilize these rubrics to follow student self-assessments, monitor progress toward mastery, and evaluate final products. The rubrics also provide teachers with a checklist of required ideas or components to help students organize their thinking and ensure that they are showing what they have learned."
- Materials include an Assessment Administration document, located under Course Materials, that provides step-by-step guidelines to instruct teachers how to score digital assessment questions, including rubric-based constructed response questions. Since rubrics are intended to be both student and teacher-facing, they are also found on the student digital page. Each rubric provides specific criteria required for a response to be awarded points.
- Materials include information that guides teachers in evaluating student responses. Materials guide teachers to look for specific components when evaluating student responses. Materials contain the correct answer(s) and/or sample student responses for all discussion prompts, checks for understanding, data analysis, etc., indicated in the magenta-colored text. For example, in the grade 6 Matter and Properties unit, the "Setting the Purpose" section of the

Lesson Planning document for *Investigating States of Matter* guides teachers to ask students three questions. Materials include the following prompts and sample responses: “What things around you are made of matter? Sample response: Everything you can touch is made of matter, including solids, liquids, and gases, such as the air. What is matter? Sample response: Matter is the “stuff” that makes up the world around us. It also takes up space. How do the different states of matter compare? Sample response: Solids keep their size and shape. Liquids can be poured and have no definite shape, but they keep the same volume. Gases have no definite size or shape.”

- Materials include resources that guide teachers in evaluating student responses. In both formative and summative assessment settings, materials provide a rubric for teachers each time a student is asked to respond to a prompt. This rubric can be used to evaluate whether students are rated as on target, making progress, and getting started for each component of the learning objectives and support teachers in evaluating constructed-response style assessment items. For example, within the grade 6 Matter and Properties unit, the lesson Explaining the Water Cycle asks students to respond to the prompt, “How does your model explain the phenomenon?” The rubric gives detailed descriptions for each of the rating scales for the following criteria: Describes Phenomenon: the model describes the phenomenon. Fits with Evidence: model uses evidence collected during the unit. Represents Science Ideas: model includes established science ideas. Evaluating Limitations of Model: model includes evaluation of its limitations.

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

- Materials provide guidance documents and resources to support teachers' analysis of assessment data, teachers' interpretation of the data, and tools to support teachers in responding to data to inform instruction. The Techbook provides several assessment guidance documents, found under Course Materials, to support teachers with use, analysis, and data-driven instructional planning.
- The Lesson and Concept Data Reflection Guidance documents provide teachers with reflection questions after assessments to analyze the effectiveness of a lesson or unit. The documents guide teachers in how to look at data holistically, by a specific question, at a specific student, or at a specific standard in the summative concept assessments. The documents provide suggestions for how to form groups based on data using the Lesson Assessment Reports. "Consider grouping students into the following groups:
    - 1) students needing remediation or reteaching,
    - 2) students needing repeated practice with a particular component of the learning objective,
    - 3) students needing extension or enrichment, and
    - 4) students who do not need target support at this time in the learning cycle."
- The Assessment Administration Guide, located under Course Materials, provides tips for administering summative assessments, including setting up a productive testing environment and scripts for the teacher. The guide also shows the teacher how to assign assessments, view progress, and score information.

Discovery Education Science Techbook for Texas
Grade 6

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

- The information gathered from the assessment tools helps teachers when planning core science instruction. Materials include self-reflection questions for teachers to use after analyzing and interpreting data, found under Course Materials in the Lesson and Concept Data Reflection Guidance documents.
- Within the formative assessment items in each concept, materials provide embedded scaffolded feedback that is automatically pushed to students when they select the incorrect answer. There are three rounds of scaffolded feedback that support students' individual needs by providing hints that will guide them toward the correct response.
- Course Materials include documents providing support for teachers in analyzing and interpreting data from the various assessment items in the program. Each document provides a step-by-step process for teachers to follow as they receive results from the lesson and concept assessment. Additionally, materials provide guidance for examining data by question or by student, as well as how to group students based on performance. Descriptions of how teachers can adjust instruction and plan future core instruction for the whole class or individual students are included along with guidance on identifying and utilizing additional Discovery Education resources to supplement lessons for reteaching, remediation, and enrichment.

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

- Materials provide a variety of teacher guidance for responding to student data. Located under Course Materials, Lesson Data Reflection Guidance and Concept Data Reflection documents support teachers on how to analyze and interpret data from the various assessment items in the program. For example, when guiding a teacher to form small groups, materials state, "Whether a teacher is analyzing data for a single item or a set of items in a lesson, it is likely reteaching and remediation may be necessary to meet the needs of individual or groups of students. As teachers review data, they should determine thresholds for scores based on each class that would be most impactful for reteaching, remediation, and enrichment. Use the data in the Lesson Assessment Reports as a data source for analysis."
- Documents in the Course Materials section of the digital product provide a step-by-step process for teachers to follow as they receive results from the lesson and concept assessments. Materials include guidance for examining data by question or by student, as well as how to group students based on performance. Descriptions of how teachers can adjust instruction and plan future core instruction for the whole class or individual students are included, along with guidance on identifying and utilizing additional Discovery Education resources to supplement lessons for reteaching, remediation, and enrichment.
- The Concept Assessment report data can be exported to Excel/CSV format. This allows teachers to manipulate the data to meet their needs, creating custom groupings based on TEKs-targeted groups. For example, the teacher could color-code all the students who correctly scored above a specific threshold on a particular standard to create a group for enrichment.

Discovery Education Science Techbook for Texas Grade 6

Indicator 6.3

Assessments are clear and easy to understand.

1	Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.	M
2	Assessment tools use clear pictures and graphics that are developmentally appropriate.	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.

- Formative and summative assessments contain items that are scientifically accurate, avoid bias, and are free from errors. For example, the grade 6 Unit 1, Concept 1, Concept Summative: *States of Matter* contains an age-appropriate assessment that has non-biased and scientifically accurate questions.
- Assessments contain items for the grade level that are scientifically accurate. Formative and summative assessments include assessment items that align with taught objectives and present grade-level content and concepts, science and engineering practices (SEPs), and recurring themes and concepts (RTCs) in a scientifically accurate way. In each concept, materials include Elaborate and Extension lessons. These lessons include summative assessments that require students to integrate the SEPs and RTCs with the scientific knowledge they obtained throughout the previous lessons. For example, in the grade 6 lesson *STEM Project Starter: Thermal Expansion Joints*, within the Matter and Properties unit, materials provide the teacher with the following overview: “In this STEM project, students complete a summative assessment by examining the use of expansion joints in construction and the failure of those joints. Students observe that increases in average temperature affect more than energy use to keep homes and businesses cool, but also can disrupt the movement of people and materials.” However, the teacher materials do not list any TEKS for this assessment task, making identifying the SEPs and RTCs difficult. Without an assessment companion that lists these extensions as summative assessments and identifies the dual and triple-coded TEKS, identifying these as true 3D assessments proves to be challenging for teachers.

- Throughout materials, assessments contain items for the grade level and course that are free from errors. For example, the assessment at the end of the lesson *States of Matter*, within the grade 6 Matter and Properties unit, asks students: "Sometimes, matter behaves in unexpected ways. For example, some people claim that hot water will freeze into ice cubes faster than cold water. Could this be true? Describe an experiment that you could perform to test this question. Include materials, procedure, and data you would collect." The Lesson Planning document accurately lists the correct materials, procedure, and data to collect in magenta-colored text.

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

- Materials provide assessment tools that use clear pictures and graphics. In the grade 6 lesson *Substances and Mixtures*, within the Matter and Properties unit, students watch videos and read about homogeneous and heterogeneous mixtures. Materials provide clear pictures of salt, sugar, and trail mix.
- Materials provide assessment tools that use clear pictures and graphics that support student learning of the concept. For example, within the grade 6 Matter and Properties unit, the lesson *Solids, Liquids and Gases* contains images of water being poured into a glass, a video on the states of matter, ice crystals on a window pane, a video that explains boiling point, and a close up image of a person soldering wire. All of these images are clear, age-appropriate, and help build conceptual understanding.
- Materials provide assessments that have pictures and graphics that are developmentally appropriate. For example, the grade 6 Concept Summative: *The Rock Cycle*, within the Earth and Space Systems unit, uses pictures to represent the Earth's layers that are age-appropriate and not distracting to the student. The magnifying feature allows images to be enlarged for ease of viewing. The publisher should note that the picture for number ten does not work unless you click on the magnifying glass.

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

- Materials provide guidance for teachers to consistently and accurately administer assessment tools. Materials provide both general and specific guides that discuss the assessment program. For a general overview, the *Grades 6-8 Program Guide* provides an overview of the assessment tools provided. “Science Techbook provides several formative and summative assessment opportunities, carefully embedded in the cycle of learning to help teachers guide their students to mastery of key learning targets and objectives. These assessment opportunities allow teachers and students to monitor progress and provide direct practice with STAAR-like item types across a variety of assessment formats.” Additionally, materials provide an Assessment Guide that supports the teacher in understanding the types of formal and informal assessment tools included in the curriculum. "Science Techbook for Texas includes a variety of assessment opportunities, including Lesson assessments (formative) and Concept assessments (summative), as well as additional practice items and tools." The document explains the icons used and the different types of lesson assessments that can be seen throughout each grade level. Materials include a guide, the Teacher, Caregiver, and Administrator Guide to Product Reports, that provides more specific support in describing an overview of the types of assessment data, with directions on how to access each report. This document provides support for the teacher’s understanding of the various features that serve as tools to analyze data, as well as concept and lesson reports that provide scores in easy-to-understand views.

- The Lesson Data Reflection and Concept Data Reflection document provides guidance and support for teachers on how to analyze and interpret their data. The document includes reflection questions for teachers to consider throughout the process in order to make insights based on patterns or trends in the data to better understand student performance. Additionally, materials provide guidance for examining data by question or by student, as well as how to group students based on performance. These documents include descriptions of how teachers can adjust instruction and plan future core instruction for the whole class or individual students, along with guidance on identifying and utilizing additional Discovery Education resources to supplement lessons for reteaching, remediation, and enrichment.
- The Assessment Administration document provides detailed guidance on how to administer assessments, starting with how to assign assessments to a class or group of students. It also includes guidelines for administering the summative assessments and how to score constructed response questions in both the lesson and summative assessments. Additionally, the document includes a script to be used during test administration.

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

- Materials offer accommodations for assessments and lesson tools so that students of all abilities can demonstrate mastery of learning goals. Materials include accessibility tools such as text-to-speech, highlighting, and closed-captioning built into the digital platform to allow students to access content and demonstrate their learning. For example, in the grade 6 lesson *Solids, Liquids, and Gases*, within the Matter and Properties unit, students can turn on closed-captioning in the video.
- Materials allow students to double-click on words or phrases in the lesson assessments to have them read aloud. Lesson assessments also include the ability to enlarge images, translate using browser technology, and printable sheets for items.
- The Assessment Accommodations guidance document, located under Course Materials, provides additional support to teachers, parents, and administrators describing available accommodations or strategies for assessment accommodations. This document provides detailed information of each accommodation available within the assessment experience, including how to provide separate, detailed instructions to groups and individuals. Additionally, this document provides step-by-step guidance on creating additional practice assessments or alternate forms of assessments.
- The Assessment Accommodations guidance document explains how teachers can give instructions in English or Spanish and how they can print and give assessments for students who need paper-based assessments. The document also includes instructions on developing different assessments if needed to accommodate different learners.

Discovery Education Science Techbook for Texas Grade 6

Indicator 7.1

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

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

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- Materials include teacher guidance for scaffolding instruction and differentiating activities for students who have not yet achieved mastery. In each concept, the Lesson Planning document provides suggested activities to scaffold learning for students who need additional support in the "Approaching Learner" sections. For example, in the grade 6 lesson *Changes of States*, within the Matter and Properties unit, materials provide the following guidance: "If students struggle, encourage them to spend extra time in the interactive, either by themselves or with a partner. Have students describe the changes they observe in the molecules of water, first when the water is heated and then when it is cooled. They should recognize that the molecules do not break into atoms or rearrange to form new molecules. Instead, they move faster and eventually separate when they are heated, and they move slower and eventually vibrate in place when they are cooled."
- Materials do not include ample resources to ensure teachers can target instruction to develop precursor skills necessary to access grade-level content. For example, materials do not contain additional lessons for small group instruction based on students' areas of need. Materials do not include scientific texts at different reading levels for independent or guided small-group instruction. Materials also do not include various student activities that can be assigned to reteach, review, and practice skills for students who need additional support for mastering course-level science concepts and skills.
- Materials do not provide additional resources for targeted instruction and differentiation to support students who have not yet achieved mastery. Materials lack additional reteaching

materials for intervention purposes to support students who may still not have achieved mastery after instruction or the end of concept summative assessments. Materials provide no explicit resources to support additional small-group instruction.

- While the Discovery Education platform includes various activities, such as virtual field trips, videos, and activities, these additional resources are not integrated into the digital techbook. These additional resources should be integrated into the digital techbook rather than linking to an external platform.

Materials provide enrichment activities for all levels of learners.

- Materials provide enrichment activities that account for learner variability. Teacher guidance and resources encourage the exploration and application of grade-level science knowledge and skills in a variety of ways. Materials provide a variety of resources for students to construct new knowledge. These include text, video, simulations, scientific investigations, and engineering challenges. All lessons on all Concepts in each Unit provide at least some of these opportunities. For example, in the grade 6 Concept *Identifying New Substances*, within the Matter and Properties Unit, the first three lessons provide opportunities for students to observe and record an investigation, discuss with peers, write their predictions, and record observations. Materials also provide students with videos to watch and scientific texts to read.
- Materials utilize the 5E model to deliver instruction and enrichment activities to all levels of learners. In each concept, the Elaborate section offers an extension of learning for all students through investigations into STEM careers or STEM in Action. For example, in the *STEM Project Starter: Classifying Minerals* lesson within the grade 6 Earth and Space Systems unit, materials direct students to collect rock samples outside with their group. Materials have students discuss what the difference is between a rock and a mineral. After discussion, materials guide students to graph given data using the product's digital Data/Graphing Tool. Students then differentiate between the different materials.
- Materials include guidance to regularly engage in tasks such as small group or partner discussions and writing prompts. For example, in the grade 6 Matter and Properties unit, the lesson *Solids, Liquids, and Gases* provides students with text, videos, and numerous prompts to discuss with small groups such as "What does temperature measure in a substance? What happens to the temperature and molecules in a substance during condensation?" Later in that same lesson, materials guide the students to write about Heating Metal. "Solder is a metal wire that can be melted to join circuit boards, make jewelry, and connect electrical wires. Describe the changes to the metal particles as they change from a solid to a liquid to a gas. Use all words and phrases from the word bank in your response. "

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

- Materials include recommendations for just-in-time scaffolds to develop productive perseverance in learning at the moment. For example, in the grade 6 lesson *Changes of State*, within the Matter and Properties Unit, students investigate the effect of temperature on states of matter. Students use an interactive simulation to observe and describe what happens to the molecules of water when it changes state. Materials provide the teacher with guidance and procedures for the students to complete the investigation individually, in small groups, or teacher-led. Materials provide the teacher with suggested questions to ask the students to engage the students in the task, such as "What happens to the particles in each substance at the

boiling point? What happens to the particles in each substance at the freezing point? How does the kinetic energy of particles change with temperature? Why is the freezing point of a substance the same as its melting point?"

- Materials include prompts and cues to use with learners when they are stuck on a particular task or unsure how to proceed. The Science Techbook for Texas – Grade 6 provides suggested activities to scaffold learning for students who need additional support in the "Approaching Learners" section of the Lesson Planning documents. For example, within the Cells, Ecosystems, and Variation unit, the Lesson Planning document for *Investigating Ecosystem Levels* provides teacher guidance if students do not understand hierarchy and leveling. "If students struggle, read each option aloud and write each of the four levels on the board from smallest to largest. Help students understand that smaller levels can be found in larger levels but larger levels cannot be found in small levels. Then have students revise their answers and share their reasoning for why they changed their answers." The lesson then encourages students to go back and revise their work. Materials do not just give students the answer, instead, they provide students with more information to encourage productive struggle.
- Materials provide extra resources for students who are ready to extend their learning. For example, the Science Techbook for Texas – Grade 6 includes Elaborate lessons within each concept that allow these students to extend their knowledge and apply new knowledge to new situations. For example, after learning about tides in the Seasons and Tides concept within the Earth and Space Systems unit, an Elaborate lesson *Harnessing Energy from Tides* includes text and video, then guides students to describe how tides apply to STEM careers.
- Materials provide support and resources for students who are ready to accelerate their learning. In each concept, materials provide suggested activities to extend learning for students who are ready for acceleration, located in the "Advanced Learners" section of the Lesson Planning documents. For example, in the grade 6 lesson *Changes of State*, within the Matter and Properties unit, the "Advanced Learners" section states, "Challenge students to represent their data for the freezing and boiling points in a chart or graph. Ask them to think about what type of display will work best for their data and have them construct the chart or graph for each of the three substances. Invite them to research the freezing and boiling point of another substance they are curious about to add to their data display. Have students use their graphs to predict which substances have the highest attractive force between molecules."

Discovery Education Science Techbook for Texas
Grade 6

Indicator 7.2

- Materials engage students in mastery of the content through various developmentally appropriate instructional approaches. Materials include various lesson types in each concept from hands-on investigations, to interactive model lessons, to media and literacy lessons, to gather evidence to tie back to the real-world phenomenon in the Engage section of the lesson. These varied learning experiences deepen students' understanding, allow students to demonstrate science and engineering practices, and require students to think about recurring themes and concepts. For example, in the grade 6 Matter and Properties unit, Concept 1: States of Matter, materials provide the following guidance:
    - Lesson 2: *Investigating States of Matter*, students investigate the properties of the three common states of matter by participating in a hands-on activity.
    - Lesson 3: *Changes of States*, students investigate the effect of temperature on states of matter by using an interactive simulation.
    - Lesson 4: *Solids, Liquids, and Gases*, students explain states of matter in terms of properties and kinetic energy by gathering information about how the kinetic energy of particles relates to their states of matter and their properties. Students read scientific texts and watch videos to gather this information.
- Materials guide and support teachers' understanding of developmentally appropriate instructional strategies. The Educator Supports section includes an Instructional Strategies section that provides teachers with knowledge of implementing research-based instructional strategies throughout the lessons.
- Materials guide and support teachers' understanding of developmentally appropriate instructional strategies designed to engage students in content mastery. Embedded in lessons across each concept, materials provide Spotlight on Strategies (SOS) videos for the teachers. These research-based strategies help engage students and expect them to analyze information and share their thinking with their peers to refine their ideas. For example, in the grade 6 Forces and Energy unit, the lesson *Net Forces and Force Diagrams* includes an SOS video and a text description of the strategy that provides the teacher guidance on an instructional activity called Pin It. "Pin It: Check student comprehension of the text by using this strategy. Label four sides of the room Facts, Questions, Vocabulary, and Diagrams/Images using poster charts or butcher paper. Show students the animation titled Free Body Diagram from the Discovery digital database. Ask students to think about how the force diagram of the skier in the animation is similar to and different from the force diagram they drew. Distribute four sticky notes, each a different color, to each student and explain what each color represents:
    - Pink: one factual statement
    - Yellow: one question
    - Green: one vocabulary word (with definition on the back)
    - Blue: one sketch/drawing to illustrate or explain a similarity or difference between the two force diagrams.

  After viewing the animation a second time, students will use the sticky notes to share their learning. As students complete their sticky notes, have them stick their ideas to posted butcher paper. When all the students have posted their notes, have them rotate around the room and review each piece of butcher paper. Provide each student with additional sticky notes to add supporting details or responses to each other's ideas."

- Materials include a model-revision strategy to draw on concepts and evidence acquired during the unit to revise their initial models, constructing a new model for the unit. In the grade 6 Earth and Space Systems unit, the lesson *STEM Project Starter: Groundwater* asks students to create a draft model of how they would help to recharge aquifers. Students work individually at first but then are placed into groups of three to four students. Students discuss each other's models and then make revisions to their own models.

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, partners, one-on-one). There are activities in each Concept that allow for such groupings. For example, in a grade 6 lesson Observing the Water Cycle, within a unit on Matter and Properties, materials provide the following guidance for the teacher. “Have students form small groups of three to four students. Each student in the group should take a few minutes to share their initial model and explanation. After each student has presented his or her model, the other students should each write down one question about the explanation and model and one suggestion for improvement.”
- Materials guide teachers on when to use specific grouping structures such as Think-Pair-Share. Within the grade 6 Cells, Ecosystems, and Variation unit, the lesson *Investigating Interactions in Ecosystems* provides student guidance: “Discuss the following questions with a classmate: How would you describe the relationship between birds and flowers? What happens if two species in an area depend on the same resources?”
- Materials guide teachers on when to use specific grouping structures based on the needs of students. At key points throughout the learning cycle, the Lesson Planning documents provide the teacher suggestions on grouping students based on student’s needs, interests, or preferences. These teacher materials also include differentiation strategies for advanced learners, approaching learners, etc.

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 (e.g., modeled, guided, collaborative, independent). For example, in the States of Matter Concept of the grade 6 Matter and Properties unit, students observe a phenomenon as a class in the Engage lesson and have a whole class discussion as their teacher leads it. They work in collaborative groups to conduct investigations and make sense of models (physical and pictorial models of structures of different states of matter.) They work independently on answering questions in the "Check for Understanding" section of each Explore lesson and the "Review" section of each Evaluate lesson.
- Materials allow students to meet in groups to discuss scientific content. Within the grade 6 Cells, Ecosystems, and Variation unit, the lesson *Investigating the Theory of Cells* guides students to work in groups to investigate different specimen cards and any evidence supporting the tenets of Cell Theory.
- Lessons include teacher moderation of student working groups to engage in scientific discussions and debates. The grade 6 lesson *Investigating Natural Resources*, within the Earth and Space Systems unit, includes guidance in the Lesson Planning document for teachers to support students as they collaborate in groups to build a water filtration system. “Circulate among groups and provide support as they build and test their devices. Demonstrate how to use

pH paper to measure the pH and remind students to be precise in their measurements and observations. At the end of the first test, show the proper methods for cleaning out the bottles to prepare for the second test. Ask guiding questions, such as What does a pH less than 7 indicate? What other materials might serve as better filters?"

- Materials provide teacher guidance and structures for effectively implementing multiple types of practices. There is detailed guidance in the Lesson Planning document for each lesson. For example, in the lesson *Observing the Water Cycle,* within the Matter and Properties unit, materials explain how to set the purpose of learning in this concept, how to collect student observations and questions about the anchoring phenomenon, how to construct a driving questions board, how to make connections to recurring themes and concepts, and how to support students to create initial models to explain the phenomenon. This helps create engagement and helps teachers to elicit students' prior knowledge.

Materials represent diverse communities in the images and information about people and places.

- Materials represent diverse communities using images and information that are respectful and inclusive. Images reflect the diversity of school communities and match the content. Characteristics vary in images to include race and ethnicity, skin tone, gender identity and expression, age, disability status, body size and shape, and hair texture. For example, in the grade 6 Forces and Energy unit, the lesson *Moving On* includes a video with many different races of people and individuals in wheelchairs. The names presented in the assessments equally include male and female names; they also represent diverse backgrounds.
- Materials represent diverse communities. The *Grades 6-8 Program Guide* includes images of students and teachers of different races and there is a similar ratio of boys to girls pictured in the guide.
- Materials represent diverse communities using images and information that are respectful and inclusive. STEM careers lessons allow for students to further explore areas of interest beyond the classroom and consider career pathways related to core scientific ideas. These lessons allow students to see themselves as valuable contributors to the larger community.

Discovery Education Science Techbook for Texas Grade 6

Indicator 7.3

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.	PM

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- Materials include linguistic accommodations commensurate with various levels of English language proficiency as defined by the English Language Proficiency Standards (ELPS). The Lesson Planning document for most lessons includes guidance for teachers for Beginning, Intermediate, Advanced, and Advanced High English proficiency levels. These lessons provide scaffolding suggestions for each proficiency level when students are listening, reading, speaking, or writing. For example, in the grade 6 lesson *Investigating States of Matter,* within the Matter and Properties unit, the document provides the following English language proficiency support:
    - "Beginning: In small groups, read the activity directions with students and note any unfamiliar or challenging words. Encourage students to consult the interactive glossary when needed to help them understand vocabulary, and make sure they recognize the difference between the concepts of size and shape. As students complete the activity, encourage them to use vocabulary correctly to describe the properties of solids, liquids, and gases. Provide sentence frames to help students communicate. I cannot compress matter in the _____ state or the _____ state. I can only compress matter in the _____ state.
    - Intermediate: As students complete the activity, encourage them to use the correct vocabulary to describe their observations of solids, liquids, and gases. Provide sentence frames for students to help them discuss their observations and the results of the activity. The ice balloon keeps its _____ when you try to squeeze it. The water balloon

keeps its _____ but its _____ can change. The balloon with air can change both _____ and _____.
    - Advanced: Have students describe the activity and its results to one another. Students may quiz one another about how each state of matter responds when it is squeezed. Encourage them to use terms such as flexible, rigid, and compressible.
    - Advanced High: Have students work with partners to identify the characteristic properties of solids, liquids, and gases, and to explain how the results of the activity demonstrate these properties."
- Materials include linguistic accommodations commensurate with various levels of English language proficiency as defined by the ELPS. The materials embed scaffolds for emergent bilingual (EB) students into lessons, such as visuals, gestures, sentence stems, graphic organizers, anchor charts, and manipulatives. While the differentiation strategies are usually prefaced with "If students struggle," they are also excellent strategies for EB students. For example, within the grade 6 Matter and Properties unit, the Lesson Planning document for *Solids, Liquids, and Gases* provides the following guidance: "If students struggle, prepare a three-column chart on the board with headings for the three states of matter: solids, liquids, and gases. Ask students to help you add details to the chart, including examples of each state of matter, whether shape or size is fixed or changeable, and a description of the particles. Then draw and label arrows between the columns to show the names of the changes from one state to another. Students may copy the chart to serve as a useful summary of the lesson." It would be beneficial for the publisher to remove the "if students struggle," as this strategy is an excellent example of multiple means of representation in the Universal Design for Learning.
- Materials suggest using diagrams to incorporate linguistic accommodations into a lesson. In the grade 6 lesson *Earth's Spheres*, within the Earth and Space Systems unit, materials suggest that teachers have struggling learners focus on the spheres by drawing a diagram. Once drawn, students label each layer and provide a brief written description of the layer. Once students have a better understanding, the teacher provides sentence stems to help them develop explanations on how the layers interact to maintain life on Earth.

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

- Materials encourage very little strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. The Teacher Overview Lesson Planning section for each concept includes a section on the Spanish cognates for the vocabulary words for the concept. For example, in the grade 6 Matter and Properties unit, Concept 1 lists the Spanish cognates: condensación, congelación, deposición, energía cinética, evaporar, gas, líquido, sólido, sublimación, temperatura. Student materials include a glossary or text boxes, however, these definitions do not include cognates or definitions in second languages (i.e., Spanish.)
- A few of the videos in the glossary do include closed captioning in Spanish, but the animations do not include any language supports. Some interactives in the Techbook can be accessed in different languages, however, it is inconsistent. For example, the grade 6 lesson *Changes of States*, in the Matter and Properties unit, includes an interactive that can be viewed in English or Arabic, while the interactive within the lesson *Where do I Belong*, found within the same unit, can be viewed in English or Spanish. Materials lack a resource for teachers to have an overview of the specific language supports for each language that is available for each concept.

- Materials do not have other supports that encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. For example, the materials do not include:
    - Support for teachers about how and why to promote and build first language proficiency.
    - Tips for teachers about the importance of allowing students to express their understanding in their first language and practical suggestions for teachers who do not speak the student's first language.
    - Family letters explaining the instructional objectives and/or homework in languages other than English.
    - Links to resources for translation or support in first languages.
    - Textbooks or audio/video clips that explain concepts in languages other than English.
- Materials include brief information about language transfer in The *Grades 6-8 Program Guide,* however, more in-depth instructions are only available as what seems like an additional paid resource, Experience Level resources. Additionally, the "English Language Learner Center" portion of the product website is not available for reviewers to access.

Discovery Education Science Techbook for Texas Grade 6

Indicator 7.4

Materials provide guidance on fostering connections between home and school.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials provide information to share with caregivers about the design of the program. Materials provide caregivers with a Parent/Guardian Letter describing how to access the program and how the design of the program supports students to act and think like scientists and engineers.
- Materials provide information to share with students about the design of the program. Materials provide students with a letter describing the program. “These resources will help you make observations, analyze, and interpret data to figure out real-world phenomena. You will solve problems, make connections between science and the world around you, and explore questions you have about science.”
- Materials provide information to share with caregivers in the Caregiver Course Overview. “Your child’s teacher is using Discovery Education in their classroom to help your child master key scientific concepts and act and think like a scientist. Your student can sign in anytime to engage with exciting digital activities and resources across various subjects, grades, and topics of interest. Students engage with interactive science instruction to analyze and interpret data, think critically, solve problems, and make connections across science disciplines. In addition, they experience dynamic content, explorations, videos, digital tools, hands-on activities and labs, and game-like activities that inspire and motivate scientific learning and curiosity.”

Discovery Education Science Techbook for Texas
Grade 6

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. The Caregiver Course Overview includes for each unit a Unit Summary, Key Vocabulary, and descriptions of the Unit Phenomenon. “More details on what we are exploring, along with some suggested ways you can support student curiosity at home, are provided for each unit. Allowing students to make observations of the world around them encourages them to continue to ask questions about the real-world phenomenon we are uncovering in each unit.”
- The Caregiver Course Overview includes "Conversation Starters" for caregivers, which provide questions they can ask their students to talk about the topics at home.
- Materials provide at-home practice activities for caregivers to help reinforce student learning and development. The "Home Connections" section of the Caregiver Course Overview provides activities for parents to do at home to reinforce their learning at school.

Materials include information to guide teacher communications with caregivers.

- Materials include teacher guidance for communicating with caretakers. The Caregiver Course Overview positions caregivers as partners in the learning cycle in the classroom. "The overview provides caregivers with details on the science topics students are exploring, creative ways to support their curiosity, and conversation starters to keep the science discussions going at home." It includes a Unit Summary, Key Vocabulary, and descriptions of the Unit Phenomenon.
- Materials guide teachers to communicate with caregivers and suggest when and what to communicate. Materials guide teachers to communicate often, using easily downloaded files for each student that can also be translated as needed.
- The Caregiver Course Overview includes screenshots for teachers to see what caregivers view when following student progress. Teachers can use this to guide caretakers' involvement in their student's education. "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."
- The publisher should include the additional resources (Discovery Education Family Resource page and Discovery Education Guide for Families) within the digital techbook rather than linking to an external platform.

Discovery Education Science Techbook for Texas Grade 6

Indicator 8.1

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

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

- The materials include a year-long scope and sequence found in the Grades 6–8 Program Guide. The “Grade 6 Scope and Sequence” section breaks down the material by unit and concept titles and their alignment to the Texas Essential Knowledge and Skills (TEKS) and the English Language Proficiency Standards (ELPS). This section includes a general pacing guide that shows what order to teach the material.
- Grade levels are organized by courses. In the grade 6 course, there is a link to “TEKS Alignment.” Within this subsection, all TEKS are listed sequentially and include which concept titles incorporate each of the TEKS.
- A “Table of Contents,” found in the grade 6 course, breaks down each unit by lesson. The “Table of Contents” also shows TEKS alignment for each unit, including pacing. Teachers can review where each of the TEKS is revisited throughout the year by clicking on the links provided in the “Table of Contents.”
- Each grade 6 unit includes “Unit Resources,” which includes a Standards Alignment section for both the TEKS and ELPS. The “Unit Resources” also include a Unit Structure and Pacing section that contains a daily pacing guide with recommended minutes for each unit and an accelerated pacing guide.

Discovery Education Science Techbook for Texas Grade 6

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

- Teacher guidance materials explain connections across core concepts, Scientific and Engineering Practices (SEPs), and Recurring Themes and Concepts (RTCs). These are referenced and defined in the Grades 6–8 Program Guide, which includes a data table that shows how the core concepts are vertically aligned across grades 6–8.
- The Grades 6–8 Program Guide instructs the teacher on the integration of the core concepts, SEPs, and RTCs. The Program Guide states, “The scientific and engineering practices, recurring science themes, and core scientific concepts are not intended to be learned in isolation. Instead, students develop an understanding of core scientific concepts best when they are engaged in scientific and engineering practices, and students learn scientific and engineering practices best when they use them to develop an understanding of core science concepts. By actually engaging as scientists or engineers, students are able to build conceptual understanding through direct observations and interactions, which solidifies and deepens their comprehension of scientific core concepts.” It also includes guidance for facilitating questioning, ameliorating group dynamics, and conducting investigations.
- The materials are written in the 5E format. In Engage, the materials explicitly guide students to use the lens of a focus recurring theme as they investigate evidence throughout Explore and document their new learning and evidence in Explain. Phenomenon Check-Ins throughout Explore allow students to make connections across three dimensions as they figure out the phenomenon introduced in Engage. The robust lesson-level teacher support includes targeted discussion prompts, sample models with annotations related to the RTC and content connections, and strategies for students to make connections across all three dimensions. The materials include a lesson plan for each concept. This plan guides the facilitation of the lesson and may provide details on the facilitation of the SEPs and RTCs within that lesson. The lesson plans also include targeted discussion prompts, sample models with annotations related to the RTC and content connections, and strategies for students to make connections across all three dimensions.

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

- The materials intentionally spiral previously taught knowledge and skills throughout the year. The Grades 6–8 Program Guide provides a list of how SEPs and RTCs are spiraled throughout the year. The core concepts are included in the summative assessments at the end of each unit.
- Across each course of the middle school program, summative assessments in each concept consist of two to three-dimensional items that allow for repeated practice and student demonstration of mastery across the SEPs and RTCs. This allows students multiple opportunities for practice and performance of these components across a course, in addition to opportunities within the other portions of the 5E instructional design of each concept. Each item was written directly to the TEKS, including connections to the SEPs and RTCs, and teachers can use the resulting data to gather data related to needs for retention and mastery.
- Across each course, the materials contain specific content standards within each unit; however, the units are sequenced in each course to build the foundational scientific understandings necessary to achieve the identified core content standards. For example, in the grade 6 course, the materials introduce the core ideas of force and energy at the beginning of the year in Unit 2.

These foundational ideas about forces and energy flow are necessary for students to build their understanding of Earth's forces in Unit 3 when they study Earth's spheres, the rock cycle, and natural resources used for energy in human-made systems. Additionally, the water cycle is discussed in Unit 1 lesson, “Observing the Water Cycle,” found in the concept Matter and Properties. Students make observations of the water cycle, ask questions, and develop an initial model about it. Students return to this idea again later in the year in Unit 3, “Earth and Space Systems” in the Earth’s Spheres concept. Students explore how the hydrosphere and atmosphere interact to continue the water cycle that replenishes the Earth’s water resources.

- Materials include opportunities for teachers to check for understanding embedded throughout each lesson. In the Checks for Understanding sections, “students engage in a series of quick digital or print assessments directly tied to the standards of the lesson to demonstrate their understanding related to the targeted portion of the standard.” At the end of each lesson, there is a review section, What Did You Figure Out?, that allows students to discuss what they have learned in the concept with their peers through various activities such as a quick exit ticket or Turn and Talk.

Discovery Education Science Techbook for Texas Grade 6

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

1	Materials provide teacher guidance and recommendations for use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning.	M
2	Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level.	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. The materials provide teacher guidance for using the resources at different levels of the product: course level, unit level, concept level, and lesson level.
- At the course level, the Grades 6–8 Program Guide provides teachers with clear guidance on how the materials support student discourse and how teachers can effectively facilitate student-led discussions. The Grades 6–8 Program Guide further breaks down the materials by unit level, providing clear guidance for the teacher on how to use the Unit Planner.
- The Lesson Plans found within each concept provide teacher guidance and recommendations for the use of all materials. The materials suggest ways to include enrichment activities and guidance for approaching learners. For example, in the Lesson Planning tab for the STEM Project Starter: Interacting with the Periodic Table, the materials direct teachers on how to scaffold for struggling math students.

Discovery Education Science Techbook for Texas Grade 6

- The Discovery Science Techbook organizes the materials in a way that facilitates ease of implementation and use, including videos on how to implement research-based instructional strategies. For example, in a grade 6 lesson, “Changes of State,” the materials provide the teacher with an instructional video on how to facilitate the "Take a Walk" instructional practice. Some embedded resources, such as graphing calculators and whiteboards, include video instructions.

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

- The materials include standards correlations in multiple places for the teacher, including an overview for the year in the “Scope and Sequence” located in the Grades 6–8 Program Guide and in the Table of Contents on the homepage of the Techbooks.
- Science Techbook for Texas was designed to support Texas ELA and Math standards. The publisher provides the alignment chart in Course Materials on the home course page. Each concept found in the course aligns with a subset of ELA standards across the Engage, Explore literacy, and Explain lessons in each concept. In every concept, students are speaking, writing, and listening to support comprehension of science content. The embedded discussion prompts drive students to engage in meaningful discourse and practice active listening while developing their ability to contribute relevant information to collaborative discussions. The variety of text types in the program provides students with opportunities to deepen their comprehension of complex texts. The embedded interactive glossary tool allows students to validate their understanding of science vocabulary. Specific grade 6 math standards align with lessons included in the Science Techbook for Texas, Grade 6 course. Throughout the program, students apply mathematics to everyday problems, use mathematical problem-solving to make sense of scientific phenomena, and communicate mathematical ideas and reasoning using a variety of different representations.
- The materials include science standards (TEKS) and English Language Proficiency Standards (ELPS) correlations at the unit and lesson levels. For example, in a grade 6 unit about “Cells, Ecosystems, and Variation,” the Unit Planner lists the TEKS and ELPS by science concept. The Unit Resources section also includes a Standards Alignment document that lists the TEKS and ELPS by concept and lesson.

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

- The materials include a list of equipment and supplies needed at the unit level. This list can be found in the Unit Resources section of the Discovery Ed Techbook. The resource, which is titled “Hands-on Lessons: Preparation and Materials,” provides a comprehensive list of all equipment and supplies needed to support students and teachers throughout the entire unit. The resource also includes guidance for the teacher on advanced preparation.
- Each lesson includes additional materials and resources in the "Lesson Planning" document. Some of these resources contain a “Materials List, Safety, and Preparation” document necessary for each lesson. For example, in the grade 6 lesson, “Observing the Water Cycle,” the section of the lesson plan titled “Materials List” details the equipment and supplies needed for the students and teacher in the lesson.

Discovery Education Science Techbook for Texas Grade 6

- Science Techbook for Texas includes a comprehensive list, found in the Course Materials, that includes all the necessary equipment and materials for the successful implementation of this course. This spreadsheet breaks down the entire year by Unit, Concept, and activity title. The Comprehensive Materials List breaks down the materials by how many student groups it provides for (eight), the quantity of materials necessary for the whole class, or if it is intended for a teacher demonstration.

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

- The materials provide teacher guidance for safety practices and grade-appropriate use of safety equipment during investigations. For example, in a grade 6 lesson, “Investigating States of Matter,” materials include an investigation of the properties of the three common states of matter. Materials instruct the teacher to remind students to follow all lab safety guidelines, including the following:
    - Wear safety goggles.
    - Wear proper safety attire as needed for the materials being used.
    - Tie back long hair.
    - Do not eat or drink anything in the lab.
- The materials provide student guidance for safety practices and grade-appropriate use of safety equipment during investigations. For example, in a grade 6 lesson, “Investigating States of Matter,” materials include an investigation of the properties of the three common states of matter. Materials instruct the students to “Refer to the safety guidelines posted in your classroom. Wear safety goggles and other safety equipment that is appropriate for the materials. Tie back long hair, and remember not to eat or drink anything during the investigation.”
- In the grade 6 level techbook, there is a Course Materials link. The Course Materials include a document titled “Safety in the Science Classroom.” This document provides guidelines for the students: “Following common safety practices is the first rule of any laboratory or field scientific investigation.” The document includes sections titled Dress for Safety, Be Prepared for Accidents, and Practice Safe Behavior. Each section includes more guidance for students to follow that is grade-appropriate.

Discovery Education Science Techbook for Texas Grade 6

Indicator 8.3 Grade 6

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 Discovery Science Techbook includes guidance and recommendations on the required time for lessons. For example, the Table of Contents details the estimated minutes of each lesson for each concept for the entire year.
- The materials include guidance and recommendations on the required time for learning activities within lessons. Within each lesson, the materials guide the timing for each learning activity. Each lesson plan includes detailed time stamps for the teacher.
- These materials include suggested pacing in two different ways (comprehensive and express) that are focused on schedules based on 45-minute lessons. There are built-in opportunities for extension for students who need an additional level of support.

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

- The materials include guidance on strategic implementation that ensures the sequence of content is taught in an order consistent with the developmental progression of science but also provides flexibility for districts. For example, the Grades 6–8 Program Guide describes the core structure of the program: “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 materials provide numerous extensions and hands-on activities.

- The materials include guidance on strategic implementation that ensures the sequence of content is taught in an order consistent with the developmental progression of science. The Unit Summary, located in the Unit Planner, details the flow and interconnectedness of the concepts taught within the unit.
- Units include concepts that are strategically bundled. The materials clearly delineate the order of units to ensure students learn about precursor concepts first. For example, in grade 6, the materials have students investigate types of forces before applying their knowledge to Newton's Laws of Motion.

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. For example, the Comprehensive Concept Pathway included in each Unit Structure and Pacing Guide provides evidence that the materials include lessons and activities for a full year of instruction. 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 length of time suggested.
- The materials provide guidance for adjusting to local time and scheduling constraints. For example, materials provide teacher guidance on how to make adjustments to condense units within the Express Pathway found in the Unit Structure and Pacing guide if instruction needs to be shortened.
- The Grades 6-8 Program Guide includes a brief explanation of how to use the lessons successfully throughout the year; it also indicates that the structure of these lessons can be altered to fit different school districts' needs.

Discovery Education Science Techbook for Texas Grade 6

Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The digital materials include an appropriate amount of white space and overall design that does not distract from student learning. Science Techbook supports student annotating and note-taking by allowing them to highlight text. The highlighted text automatically feeds into their digital Notebook, which can be accessed at any point in the learning cycle. Additionally, students can compile thoughts and notes relevant to each lesson within the structure of the notebook. Technology-enhanced items within the lesson page allow students to make their thinking visible. From the top navigation bar, students can access a series of tools that may be helpful with their interaction with lesson content, including graphing and whiteboard tools. Concept-level glossary terms are also hyperlinked within the text to provide additional comprehension support. Students can also access the full interactive Glossary on each lesson page and by selecting hyperlinked text within the lesson page.
- The digital materials include an appropriate amount of white space that does not distract from student learning. For example, materials include appropriate use of white space, such as margins, edges, and empty spaces around the content, all used consistently throughout digital materials. Materials use similar spacing between sections, equal line height in body text, and adequate spacing between paragraphs (greater than the line height of body text).
- Teacher guidance materials are designed with clear, designated places for important information. Teacher's Guides are designed so that teachers can locate important information for planning and implementation. Materials include resources such as an Assessment Guide, Program Navigation and Vertical Alignment Guide, and Program Guide. Each unit includes

resources such as Unit Structure and Pacing, a Unit Planner, Background Knowledge, Hands-On Lessons: Preparation and Materials, and Standards Alignment.

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

- Materials provide age-appropriate pictures and graphics that support learning and engagement without being visually distracting. For example, the student glossary contains multiple pictures and graphics, accessible when the student wants to use them and hidden when not needed.
- Materials consistently use age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, student pages use two to three pictures per page on average (sometimes video clips are used). The Techbook utilizes clear images that are highly relevant to the context.
- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, in the grade 6 Matter and Properties unit, the lesson *Investigating States of Matter* includes an image of a girl in a modest bathing suit swimming in a pool with many air bubbles coming from her nose. Before the image, the Techbook prompts, “Look around your classroom. You will see walls and desks, students and teachers, the ceiling, and the floor. But what fills the classroom and cannot be seen? The answer is air! Take a deep breath and hold it for a few seconds. That is air inside your lungs, stretching your muscles and ready to be breathed out. Do you think air is made of matter, just like things you can see? Let’s learn about the different states of matter and their properties.” This image could be used for discussion about the states of matter. The teacher could ask, “What examples of solids, liquids, and gases do you see in this image?”

Materials include digital components that are free of technical errors.

- Materials include digital components that are free of technical errors.
    - Materials are free of spelling, grammar, and punctuation errors.
    - Materials are free of inaccurate content materials or information.
    - Materials are free of wrong answer sheets to problems.

Discovery Education Science Techbook for Texas Grade 6

Indicator 9.2

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

1	Materials integrate digital technology and tools that support student learning and engagement.	Yes
2	Materials integrate digital technology in ways that support student engagement with 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. For example, student digital components include embedded tools, such as note-taking, variable font size, text-to-speech, a glossary, highlighting, and editable forms.
- Digital technology and tools enhance student learning through such features as videos, interactives, simulations, and online worksheets and assessments. For example, the grade 6 lesson *Changes of State*, within the Matter and Properties unit, includes an interactive simulation. It also provides an online data table for students to complete to show their understanding.
- Materials provide students opportunities to double-click and highlight words within the text. When students engage in this action, materials prompt students with the choice to have the words read aloud and the capability to highlight them. This supports student learning and engagement.

Discovery Education Science Techbook for Texas Grade 6

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 to support student engagement with science and engineering practices (SEPS), recurring themes and concepts (RTCs), and grade-level content. For example, materials provide interactive simulations and models for students to explore scientific concepts in a virtual environment.
- Materials consistently integrate digital technology to support student engagement with SEPs. For example, in the grade 6 lesson *Changes of States*, within the Matter and Properties unit, an interactive lab guides students to explore the SEPs and analyze the data and results by watching a sub-microscopic view of three liquids as they change from liquid to gas and from liquid to solid.
- Materials consistently integrate digital technology to support student engagement with the RTCs. In grade 6 interactive *Moths of a Different Color*, within the Cells, Ecosystems, and Variation unit, students analyze and explain how factors or conditions impact stability and change in organisms by launching a digital activity to discover how variation impacts species such as the peppered moths.

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

- Yes, materials integrate digital technology that provides opportunities for teachers and/or students to collaborate. In Science Techbook, every Concept features rich opportunities for peer-to-peer collaboration. Students have multiple opportunities to share models, explanations, and data with one another, allowing them to review their classmates' ideas and to obtain feedback on their own models, explanations, or data.
- Studio is a digital tool built into the program that allows student collaboration in an online setting. "Studio is a collaborative workspace where students can insert images and media content from the Discovery Education program to create presentations or demonstrate their applications of scientific and engineering practices. Student question boards, started in Engage, can be created in Studio and maintained throughout the concept as students refine their thinking. Teachers can also use Studio to develop and share content, support differentiation by varying lessons for individual or groups of students, and allow students to collaborate on whole-class assignments."
- Teachers have access to the Studio Help Center, where they can learn more about the collaboration tool and discover ways to integrate Studio into their teaching. Teachers need to enable chat for students to access it.

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

- Digital materials are accessible and compatible with multiple operating systems. For example, Single Sign-On Options include:
    - Google Single Sign-On
    - Office 365 Single Sign-On
    - ClassLink Single Sign-On
    - LDAP Single Sign-On
    - SAML/ADFS Single Sign-On

    - NCEdCloud Single Sign-On (NC Only)
- Digital materials are accessible and compatible with multiple operating systems. For example, Learning Management System integrations include:
    - Canvas & Discovery Education
    - Schoology & Discovery Education
    - Google Classroom & Discovery Education
    - Microsoft Teams & Discovery Education
    - Brightspace by D2L and Discovery Education
- Digital materials are accessible and compatible with multiple operating systems. For example, Data Syncing Management options include:
    - Google Technical Requirements
    - Clever Secure Sync (SSO and Rostering)
    - PowerSchool AutoSend for Discovery Education
- Digital materials are accessible and compatible with multiple devices, broken down by computers or tablet/mobile devices. For example, the Discovery Education System Recommendations page shows for Computers: “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, and Microsoft Edge. Downloading the most recent version of a browser means you'll always have access to our latest and greatest features. While some features may be inaccessible, we won't stop you from accessing our site with an out-of-date browser.” For tablet and mobile devices, the page states “While we don't support specific devices by name - we do ensure that our products work with devices using the most recent version of the following Operating Systems: ChromeOS, Android, iOS. What does this mean for you? If you use a device, for instance, an iPad, that has one of these operating systems then Discovery Education should work on your device.”

Discovery Education Science Techbook for Texas Grade 6

Indicator 9.3

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The digital technology and online components are developmentally appropriate for the grade level.
- The digital technology and online components are aligned with the grade-level scope and approach to science knowledge and skills progression. For example, materials provide related TEKS and English Language Proficiency Standards (ELPS) for online and digital components within the Standards Alignment resources for each unit.
- The digital technology and online components are aligned with the grade-level scope and approach to science knowledge and skills progression. For example, the scientific content studied in the States of Matter concept aligns with the student expectation as labeled (6.6A.) The learning material proves reasonable to study in the given time frame of forty-five minutes in each lesson in the States of Matter concept.

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. For example, the Educator Support section provides professional learning videos and articles on topics from how to navigate the Science Techbook, to a step-by-step

guide on utilizing materials in various Learning Management Systems, to videos and supports on instructional strategies.

- Materials provide teacher lesson plans that help guide teachers through a lesson that has embedded technology. For example, in the grade 6 interactive lesson *Structure of the Earth*, within the Earth and Space Systems unit, students launch a virtual lab. The Lesson Planning document includes instructions for the teacher to guide students in their use of the embedded technology. “Direct students to work in pairs or groups and follow the steps to explore the interactive and collect data. 1. Select a label and predict which layer of Earth it describes. 2. Check your prediction by placing the label on the diagram. 3. Read about the properties of the layer. 4. Summarize the characteristics of the layer in your data table. 5. Repeat the steps for each layer in the interactive.” Materials provide answers to the work students complete in the virtual lab.

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 how to support student engagement with digital technology and online components. For example, the Caregiver Course Overview, located in the Techbook’s Course Materials, provides unit-specific information, including ways to integrate learning into the home environment, such as a unit summary, key vocabulary, unit phenomenon, and home connections.
- Materials provide a letter with tips for families on how to support appropriate student engagement with digital and online components. The Parent/Guardian letter, located in the Techbook’s Course Materials, includes information on how to access program features at home. "Within this Student Edition, you’ll find QR codes that take you and your student to a corresponding online lesson of Science Techbook for Texas. Once in Techbook, students will have access to the Core Interactive Text of each concept, as well as thousands of resources and activities that build deep conceptual scientific understanding. Additionally, tools and features such as the Interactive Glossary and text-to-speech functionality allow Science Techbook for Texas to target learning for students of a variety of abilities."