HMH Into Science Texas Grade 8

HMH Into Science Texas Grade 8 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 educative components to support teachers' content and coherence knowledge.

Section 4. Productive Struggle

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

Section 5. Evidence-Based Reasoning and Communicating

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

Section 6. Progress Monitoring

- The materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.
- The materials include guidance that explains how to analyze and respond to data from assessment tools.

- The assessments are clear and easy to understand.

Section 7. Supports for All Learners

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

Section 8. Implementation Supports

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

Section 9. Design Features

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

Section 10. Additional Information

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

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Indicator 2.1

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

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

Meets | Score 4/4

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.

MThe 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.

- Materials provide multiple opportunities within each unit for students to develop, practice, and demonstrate mastery of grade-level appropriate SEPs as outlined in the TEKS. Concepts present within the grade level build a foundation to prepare students for the next grade level.
- All lessons contain activities that utilize the scientific method, in which students are given multiple opportunities to plan investigations, collect and analyze data, develop models, and communicate results.
    - The "Models of Matter" lesson uses a "Quick Lab" where students build objects with materials to engage in concepts of atoms. The arrangement of materials demonstrates engineering practices and supports students in learning how atoms make up different structures in objects. There are three "Exploration" activities that provide multiple

opportunities with different materials and structures to compare and contrast what the students learn.
    - In the "Models of Matter" lesson, students are given engineering questions on desalination in the section "Can you solve the problem?" Students are given multiple opportunities to explore and explain how engineering can help solve the real-world problem of removing salt from ocean water.
    - In the "Student Edition's" "Properties of Waves" lesson, the "Hands-On Lab" in "Exploration 4" has students developing a lighting system that can be used to study bat populations without disturbing them. Students sketch a diagram of their model before developing a prototype. Once the prototype is built, the students test, evaluate, and modify the model.
    - In another "Hands-On Lab," "Model Transverse Waves," students use a coiled spring toy to model frequency and amplitude in a transverse wave. Students conduct an investigation to find the relationship between the energy of a wave and the amplitude.

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

- The recurring themes are systematically placed throughout the product to continuously have the student revisit and practice the RTCs. All the units spiral recurring themes in order to help students make connections between and within overarching concepts. Teachers are provided guidance in order to consistently apply recurring themes in the classroom routinely and effectively. Teachers are encouraged to assist students in applying recurring themes to everyday life and future lessons.
    - The "Models of Matter" lesson uses a "Quick Lab" to have students build objects to engage in concepts of atoms. Students make connections to how atoms make up different structures in objects, just like the materials shape what they construct.
    - In the "Model and Classify Elements," "Compounds and Mixtures" lesson, students use bolts, nuts, and washers to make different models of elements and compounds. The use of models is spiraled back in the "Force, Motion and Energy Unit," where students model forces for given scenarios.
    - The "Standards Overview" for the "Newton's Second Law of Motion Unit" states that students will identify and apply patterns to understand phenomena and investigate cause-and-effect relationships. In the "Engage Quick Lab" "Act the Graph," students act out five distance-time graphs to relate graphs and real-life motion by looking for patterns. Students answer questions such as "Did the velocity change or remain constant?" and "Did the object have a net force acting on it based on its distance-time graph?"

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

- The materials systematically build content knowledge required to gain understanding and mastery of the TEKS by using the "5E Model" for each unit ("Engage, Explore/Explain, Elaborate, Evaluate") and focusing primarily on one content TEKS in each unit. This focus within each unit is clearly shown in the Table of Contents of the "Teacher's Edition" as well as in each "Lesson at a Glance."

  - When viewing the Table of Contents for "Characteristics of the Universe," this TEKS (8.9) is systematically developed from "Stars" (8.9.A) to "Galaxies"(TEKS 8.9.B) and "The Origin of the Universe" (TEKS 8.9.C).
  - The lesson "Newton's Second Law of Motion" is divided into chunks and step-by-step procedures in order to help students understand the TEKS. The lesson begins with analyzing changes in velocity, then investigates how force and mass affect acceleration, then moves into analyzing Newton's Second Law.
- Grade 8 content knowledge and skills are taught using SEPs and RTCs so that students can build, connect, and apply knowledge in new contexts. The materials combine the use of short quick labs and longer hands-on labs to reinforce the SEPs and RTCs. In each unit, the student is spending 40% or more of the unit integrating SEPs through investigations in order to reinforce understanding of the TEKS.
  - For example, in the "Lesson at a Glance" for the lesson "Properties of Waves" (TEKS 8.8.A), on Day 1, students complete a "Quick Lab." On Days 2 and 5, students complete "Hands-On Labs." So, out of seven lesson days, three days integrate SEPs practices into investigations.

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

- The materials provide many opportunities to use grade-level SEPs across various contexts throughout the product. Students engage in problem-solving and make connections across disciplines while developing an understanding of science concepts by performing "Hands-On Labs," located in all lessons' "Engage" and "Explore" sections.
  - The "Models of Matter" lesson uses a "Quick Lab" where students build objects to engage in concepts of atoms. Students ask questions about matter to explain how atoms make up different structures in objects, just like their choice of materials shapes the models they construct.
  - In the "Models of Matter" lesson, students are given engineering questions to demonstrate desalination in the section "Can you solve the problem?" Students are given multiple opportunities to explore and explain how engineering can solve the real-world problem of removing salt from ocean water. Students are prompted to develop their own questions regarding desalination, its process, and any positive or negative impacts it may have.
  - The "Quick Lab" located in the "Engage" section of the "Stars" lesson tasks students to conduct an investigation to answer "What Color is the Sun?" Following this activity, students watch a video and brainstorm questions as a class before grouping the questions into categories. Students then pick one or more questions that might help them answer the "Driving Question" for the phenomenon: "What can we learn about the sun by studying other stars?" During "Exploration 3," in the "Students as Scientists" section, students work in groups to choose one of their questions and pose different ways to investigate the answer.
  - The "Climate and Weather" lesson's "Can You Explain It?" requires students to make observations comparing Taklamakan Desert and Singapore before they "Ask Questions." Students then investigate the phenomenon: "What causes Singapore and the Taklamakan Desert to have different climates?" "Exploration 1" continues the investigation as students gather data about the latitude of both locations; students use

graphs to help relate temperature and latitude before they reflect on their learning. The "Reflection" is available in the "Student Interactive Lesson."

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Indicator 2.2

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

1	Materials embed phenomena and problems across lessons to support students 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.

- Materials consistently embed phenomena and problems across lessons to support the development of knowledge through authentic application and performance of SEPs, RTCs, and grade-level content as outlined in the TEKS.
    - In the "Force, Motion, and Energy Unit," students are introduced to the concepts of cohesion, adhesion, and surface tension of water as well as complete various labs for each concept. Students are given a picture of and a paragraph on water skis and tires and how water plays an important role for their structure and function. Students then research an object designed for water and share their findings with their peers.
    - In the "Chemical Reactions Unit" (TEKS 8.6.B, 8.6.E), analyzing and explaining how matter is conserved through a variety of systems is a recurring theme and concept. Students express knowledge by writing terms, using visuals, gestures, or other non-verbal cues. Students use math to calculate quantitative relationships and develop and use models to represent phenomena by creating models of atoms in chemical reactions.

- In the "Properties and Systems of Matter Unit" (TEKS 8.6), students use the recurring themes and concepts of "Stability and Change." Students predict how "Stability and Change" relate to properties of water.
- In the "Engage" section of the "Food Webs and Ecosystems" lesson, students are introduced to food webs, ecosystems, and the interdependence of each organism. The lesson leads into "Systems and System Models" with a discussion of sports and how team members are crucial for that particular sport. Students create real-world connections by describing their favorite sport or board game, identifying the components, and explaining what is required to win.
- In the "Properties of Waves Unit" (TEKS 8.8.A), students use recurring themes and concepts as they analyze how energy flows through systems ("Energy in Matter"). The students practice this same RTC in various places throughout the material, such as in the "Stability and Change in Ecosystems Unit" (TEKS 8.12.A). In this unit, students apply the RTC "Energy in Matter" to a different system — the flow of energy in ecosystems. Students describe the transfer of energy in food webs before delving deeper by examining a system and explaining how the system relies on each part to function.
- In the "Newton's Second Law of Motion Unit" (TEKS 8.7.A), students plan/conduct investigations and collect, organize, and analyze data. Students use mathematical calculations to assess quantitative relationships in data and then communicate solutions individually in a variety of formats. As they work through this unit, the students use RTCs that involve identifying and applying patterns as well as investigating cause-and-effect relationships to explain phenomena. These are accomplished as students complete the "Quick Lab" "Act the Graph."

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

- Materials intentionally leverage prior knowledge and experiences related to phenomena and engineering problems.
- The material provides many opportunities to engage students in thinking about what they already know in the "Elicit Prior Knowledge" sections of each unit lesson. Students also bring in previously learned vocabulary and concepts in relation to new concepts being taught.
  - In the "Newton's Second Law of Motion Unit," the teacher elicits prior knowledge by asking students to describe a time there was a need to slow down or speed up an object. Student perspectives might include skating/biking down a hill or the need to speed up when crossing the street to avoid oncoming traffic.
  - In "Characteristics of the Universe Unit" (TEKS 8.9), students elicit prior knowledge when asked to tell what they know about galaxies.
  - In the "Newton's Second Law of Motion Unit," prior knowledge is also elicited when students think like scientists and describe some real-world patterns they have encountered. Students also review previously learned academic vocabulary terms such as *net force*, *balanced forces,* and *velocity*.

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

- Goals and objectives are clearly outlined on the planning pages before each lesson.

    - The “Standards Overview” for the “Chemical Reactions Unit” (TEKS 8.6.B, 8.6.E) lists lesson objectives for “Energy and Energy Transfer” and gives descriptions of the “Scientific and Engineering Practices” that align with standards.
    - The lesson “Newton’s Second Law of Motion” has a lab to measure speed and graph that information. Then, students watch a video showing how a rubber band is used to accelerate different objects. There are various prompts to explore the relationship between mass and acceleration, thus teaching Newton’s Second Law of Motion.
- The “Standards Overview” section of the unit outlines the SEPs, RTCs, and lesson objectives.
    - In the “Climate and Weather Unit,” students practice the SEP “Asking Questions” and the RTCs “Systems and System Models” and “Matter and Energy.”
    - In the “Models of Matter Unit,” students practice the SEP “Developing Explanations that are Supported by the Model.” Students build a model by combining the same objects in different ways to represent how atoms combine to make different substances.
    - The “Force and Motion in Systems” lesson (TEKS 8.7) includes the SEPs “Plan/Conduct Investigations,” “Collect/Organize/Analyze Data,” “Use Mathematics,” and “Communicate Information.”

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Indicator 3.1

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- Materials include a “Scope and Sequence,” which clearly lays out and follows the suggested vertical alignment from the TEKS, helping students to build and connect knowledge and skills within and across units and grade levels. For example, grade 6 students learn about the concept of force and its components and representations; in grade 7, the motion of objects lays the foundation to discuss the effects of forces on the motion of objects; and in grade 8, students build on prior knowledge and learn about the effects of forces on the motion of objects as they investigate the laws of motion.
- Grade 6 introduces the Sun, Moon, and Earth systems; grade 7 is taught planets, asteroids, comets, meteors, and Kuiper belts; and in grade 8, the HR diagram is introduced, building upon prior knowledge of the characteristics of the universe.
- Materials vertically align within grades 7 and 8 within the “Genes and Traits” (TEKS 8.13B) unit and grade 7 “Changes of Populations Over Time” (TEKS 7.13) unit. In the “Genes and Traits” unit (TEKS 8.13B), students evaluate and reflect with practice questions on how baby Howler monkeys’ hands are adapted to grasp branches to increase survival chances. This lesson connects to grade 7’s “Changes of Populations Over Time” (TEKS 7.13) unit, where students work in small groups to record differences in puppy characteristics and adaptations for survival.

Both units use adaptations to connect knowledge and themes of how animals adapt to increase chances of survival.

- Materials are designed for students to build content knowledge across grade levels. For example, the grade 6 "Introduction to Matter" unit, grade 7 "Changes in Matter" unit, and grade 8 "Properties and Systems of Matter" unit connect knowledge and skills. In grade 6, the focus is on the terms *atoms* and *molecules* and comparing phases of matter; then, in grade 7, the students build on their knowledge of the terms *atoms* and *molecules*. In the "Changes in Matter" unit, in the "Elements and Compounds" lesson, students use symbols and formulas for atoms and molecules. By grade 8, the complexity of the student task increases in the "Properties and Systems of Matter" unit, when the driving question for the students is "How can models of elements, compounds, and mixtures help engineers remove salt from ocean water?"

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

- The materials sequence instruction in a way that scaffolds learning to allow for deeper conceptual understanding. For example, students build knowledge in the "Exploration 1" activity of the "Climate and Weather" (TEKS 8.10) unit. Students describe how energy from the Sun affects weather and climate around the globe and how energy from the Sun influences Earth's systems and climates. This is supported in grade 7 in the "Temperature and Thermal Energy" (TEKS 7.8) unit, when students build and analyze a solar cooker by using materials to construct and investigate thermal energy transfer. In the grade 6 "Energy and Energy Transfer" (TEKS 6.8A) unit's "Explore/Explain" activity, students use a chart to identify sources of energy. The activity uses "Checking for Understanding" to expand into other energy transfers, like chemical to electrical energy when batteries are charged with electrical energy. Later in the "Scope and Sequence," the "Resource Management" (TEKS 6.11) unit's lesson "The Importance of Resource Management" has an "Engage" activity where students predict and connect how energy is related to the consumption of solar energy and other forms of energy. Students gain a deeper conceptual understanding of energy as the student activities build from grade 6 to grade 8 to scaffold learning.
- In the "Properties and Systems of Matter" unit, the driving question that students are able to answer by the end of the unit is "How can models of elements, compounds, and mixtures help engineers remove salt from ocean water?" The lesson begins with students using models by combining different items (atoms) to represent different substances (molecules) in the "Quick Lab: Build Objects." In "Can You Solve the Problem?" the teacher engages students in a discussion on distillation, multistage flash distillation, and reverse osmosis before students brainstorm questions around "How is salt water turned into freshwater?" At the end of the lesson, students use evidence gathered throughout the lesson and the "Claims, Evidence, Reasoning" approach to write and support their claims. This progression of hands-on labs, teacher-led discussion, and collaboration within groups allows students to build their knowledge as they move from the beginning to the end of the lesson.
- In the "Properties and Systems of Matter" unit's "Quick Lab" "Droplet Race," students investigate the behavior of water on different surfaces, giving possible explanations for how the water moves on each surface. The teacher continues to guide students to explore these properties in the "Can You Explain It?" section, where the driving question is introduced: "How is the water strider able to stay on the water's surface?" To answer this driving question, the students work through three exploration activities, with each exploration activity designed to help students make sense of the phenomenon. In "Exploration 1," students use water droplets

on a penny to gain an understanding of cohesion and how it contributes to surface tension. In "Exploration 2," the students observe a real-world example of the effect of adhesion. In "Exploration 3," students investigate factors that affect surface tension and explore why a paper clip floats on water. All explorations show a progression of concrete information in order for a better understanding of the abstract terms of *cohesion, adhesion,* and *surface tension*.

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

- Each unit of the Teacher Edition has a "Standards Overview" where the materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices. For example, grade-level core concepts and Recurring Themes and Concepts are present within the "Genes and Traits" (TEKS 8.13B) unit. Students then progress this knowledge by evaluating and reflecting on practice questions about how baby Howler monkeys' hands adapt to grasp branches to increase survival chances. This demonstrates progression within the units and conceptual learning as students use knowledge to build in their learning of adaptations within populations.
- In the "Newton's Second Law of Motion" (8.7A) lesson, students are provided with vocabulary information before a series of exploration opportunities where they analyze changes in velocity and investigate the effect of force on the acceleration of an object and the effect of mass on the acceleration of an object. These are clearly connected to the core concepts of calculating and analyzing how the acceleration of an object is dependent upon the net force acting on the object and the mass of the object. Materials present science and engineering practices when students ask questions about the motion of different objects, conduct investigations to analyze changes in velocity, collect and analyze data to investigate the effect of force on acceleration, and construct explanations when they write about "Why does the cart not accelerate even though a force is being applied on an object?" Materials also clearly present recurring themes and concepts when students work with patterns in the "Science Themes" section.
- In the "Forces and Motion in Systems" unit's "Standards Overview" page, TEKS 8.7.A is identified as the "Lesson Objective." The RTCs are patterns and cause and effect as students act out distance-time graphs to help relate graphs and real-life motion and analyze whether a net force must act on each object or not. In the "Quick Lab" "Act the Graph," the SEP that students practice is to analyze data. Some other SEPs for this unit are collecting and organizing data, using mathematics, and communicating information.

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

- Materials define the boundaries of the main concepts that students must master for the grade level or course and include learning targets for grade-level concepts. Learning targets are presented with grade-level core concepts within each "Lesson At a Glance Planning Page." Each TEKS has a corresponding lesson and lesson objective. Underneath each lesson objective is a student learning objective defined to guide the students toward mastery of the content. Each unit contains a "Check Your Learning" to assist the teacher in determining whether students are on the path to mastering the learning objective through formative assessment. In the "Evaluate" section of each unit, the material provides a TEKS item analysis. A chart shows the specific standards the lesson covers in order to assist in monitoring student progress.

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- Learning targets are presented with grade-level core concepts in the “Exploration 1” activity of the “Climate and Weather” (TEKS 8.10) unit. Students describe how energy from the Sun affects weather and climate around the globe and how energy from the Sun influences Earth’s systems and climates. “TEKS Quiz Analysis” charts at the end of the unit show specific standards to assist teachers in progress monitoring and TEKS mastery levels.
- In the unit “Forces and Motion in Systems,” the lesson objective on the “Standards Overview” page clearly states that for TEKS 8.7.A, students should be able to calculate and analyze how the acceleration of an object is dependent upon the net force acting on the object and the mass of the object using Newton's Second Law of Motion. In the “Quick Lab” “Act the Graph,” the learning objective states: “Students act out distance-time graphs to help relate graphs and real-life motion and analyze whether a net force must act on each object or not.” In “Exploration 1,” “Analyzing Changes in Velocity,” the students’ learning objective is to describe acceleration as a change in velocity and calculate acceleration. At the end of the Explore/Explain part of the lesson, the teacher has questions to ask from the “Check Your Learning” section to formally assess student learning.

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Indicator 3.2

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- In the "Teacher Resources: Grade 8," there is a "Program Overview." The "Program Overview" explains the intent and purpose of the instructional design of the program. The "Built for Texas" section presents the following ideas of the design: the time to cover TEKS for lessons, the "5E" structure, that each lesson focuses on one TEKS, flexibility, and how the program allows students to take ownership of their learning through activity-based learning and "Student Scientist" sections. The "Scope and Sequence" shows the vertical alignment of each standard in each unit as well as the RTCs and SEPs in each unit.
- There is a "Learning Journey" for grade 8, which describes horizontal alignment that guides the development of grade-level content. This "Learning Journey" is hyperlinked to the "Scope and Sequence" chart in the electronic Teacher Guide.
- The scope and sequence provides vertical alignment of grade-level content for TEKS 6.12, 7.12, and 8.13, showing RTCs in levels of organization in cells, organisms, and species survival. Guided development of these TEKS happens with exploration activities and opportunities for students to investigate, build models, identify organisms, and sketch locations within ecosystems within each TEKS unit.
- The scope and sequence includes vertical alignment of grade-level content for TEKS 6.6A, 7.6A, and 8.6A. In grade 6, students are introduced to matter; in grade 7, they look at "Changes in

Matter"; in grade 8, students continue to build their knowledge by studying "Properties and Systems of Matter." The RTCs build from one grade level to the next: in grade 6, students identify and apply patterns to matter; in grade 7, students analyze and explain relationships between the structure and function of objects; and by grade 8, students are to identify patterns and examine and model the parts of a system.

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

- The "Standards Overview" page provides teacher background knowledge of the content, along with the common grade-level misconceptions within each lesson. An analogy that would work with students is also specified in the teacher's background information.
- Materials provide misconceptions within each lesson. For example, support for challenging concepts in the "Waves and Energy" (TEKS 8.8) unit lists the misconceptions that particles of waves move in the direction of waves travel and that waves must always travel through a medium. The unit also gives information for teacher background on waves for student barriers to learning because of waves' diverse behavior through various contexts.
- Materials contain explanations to support teacher recognition of barriers to student conceptual development. For example, in the "Introduction to Matter" (TEKS 8.6) unit's "Properties and Systems of Matter" lesson, the teacher's background is provided in the "Standards Overview." Some suggestions for the teacher in the background information include modeling the different forms of matter to help overcome misconceptions that come from the casual but incorrect use of certain vocabulary in the unit. It continues to provide background on the type of models that are useful to represent molecules, such as spheres and ball-and-stick models. It points out that the angles between the atoms are important and are shown to give an idea of the shape of the molecule.
- In the "Properties and Systems of Matter" (TEKS 8.6) unit's "Models of Matter" Lesson, a misconception the material addresses is that elements have the same properties as the compounds they form. The "Making Sense of the Phenomenon" sections that are found in each unit lesson provide support for teachers to develop their own understanding. In the lesson "Models of Matter," the material provides the teacher with evidence that would support the answer to the driving question for the lesson. It links each piece of evidence to a specific "Exploration" activity that the students were to complete. From "Exploration 2" of the lesson "Models of Matter," students should be able to understand that atoms are present in a specific ratio.

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

- The materials provide a purpose for the instructional design of the program in the "Teacher's Resources Program Overview." The "Program Overview" shows how the program is built for student simplicity to support all outcomes and is built for Texas. Within these descriptions, the material explains how to incorporate student scientists so that students may take ownership of their learning through activity-based learning, how lessons are structured around phenomena and direct experiences, and how the Teacher's Guide is streamlined so that the teacher can launch into the content with minimal planning.
- The materials provide a framework explaining the main goal of the program. It begins by providing a "Lesson Overview" for each lesson within the unit in the "Lesson at a Glance," where

the TEKS objective is clearly stated and the plan for engaging students to take ownership of their learning by the "5E" method. Each lesson mentions one TEKS and covers that concept using labs and written and constructed responses; it builds up gradually on the content. In the materials, the teacher assumes the role of facilitator by guiding discussions and asking questions. The emphasis of the material is on students constructing their own understanding of a scientific idea through firsthand observations, hands-on labs, and developing and using models.

- For example, in the "Climate and Weather" unit, objectives in the planning pages are clearly stated as to "describe how energy from the sun, hydrosphere, and atmosphere influence weather and climate." Students' activities have them explain, model, and identify these lesson objectives. Students clarify terms and write and express verbally or nonverbally before exploring through hands-on labs to understand the content.
- For example, in the "Force, Motion, and Energy" unit TEKS 8.7B lesson, students investigate and describe how Newton's three laws of motion act simultaneously within a system. The lesson map lays out all the components of the lesson to cover all the parts of that TEKS. It provides individualized built-in mini-lessons to incorporate each concept of TEKS using the "5E" model.

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Indicator 4.1

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Materials clearly define sensemaking and identify specific sensemaking behavior for students by consistently providing learning activities that support students' meaningful sensemaking through writing, thinking, and acting like scientists and engineers.
- The "Program Overview" in "Teacher Resources" states that "lessons are structured around phenomena and direct experiences that lead students through the productive struggle necessary for sense-making." The material provides specific sensemaking behaviors expected of students, such as 1) using a claim-evidence-reasoning ("CER") approach to take learning experiences and turn them into scientific explanations, thus allowing students to take ownership of their learning; 2) putting students in the scientist role as they make claims based on evidence-based learning by completing hands-on labs and other collaborative activities and; 3) through the embedding of "Students as Scientists" sections in which students are to use previous learning to think deeper about each science phenomenon.

- In the “Carbon Cycle” lesson, students read and write new terms on a “Language Development Worksheet” to further their knowledge of the vocabulary. Then, students act and think as scientists when they think about how energy, matter, and scale relate to each other in human bodies. Students then complete a paragraph describing how human-made systems can be used to mimic natural processes. Students once again act as scientists as they conduct research to investigate inexpensive methods for reducing the amount of carbon in the atmosphere before making informed decisions over each method with partners to find the most effective for the environment.
- The grade 8 Teacher’s Edition identifies and explains the sensemaking behavior of students in the first “Exploration” section of the “Matter” unit. Understanding the different types of elements provides students with the basic knowledge they need to model compounds and mixtures and understand what happens chemically during desalination.
- In the “Cell Structure and Function” lesson, students gather data to use as evidence to answer the driving question: “How is the cell like a sports stadium?” In “Exploration 1,” students build a model of the cell membrane in the hands-on lab. In the “Can You Explain It?” section, the students use the “Claims, Evidence, Reasoning” approach to write and support a claim in response to the driving question.

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

- Materials consistently provide students with multiple opportunities to engage in purposeful and targeted activities with grade-level appropriate scientific texts, such as pre-reading and vocabulary.
- In the “Carbon Cycle” lesson, students read and write new terms on a “Language Development Worksheet” to further their knowledge of the vocabulary.
- Each unit contains lessons where students engage in reading text that is often one paragraph or shorter.
    - In the “Exploration 1” section of the “Matter is Made of Atoms” lesson, the students interact with a text titled “Elements Are Organized and Classified on the Periodic Table.”
- Every “Engage” lesson in every unit includes a “Science Words” section in the Student Edition where students interact with new vocabulary.
    - In the “Models of Matter” lesson, students must choose the correct term to complete a given statement. One statement from this lesson is “(Matter or A molecule): … is a group of atoms that are held together by chemical forces.” The lesson provides a picture and a brief description for each vocabulary word: *element, compound,* and *mixture*. The material provides a vocabulary activity in which the student chooses one of the “Be Creative” activities to reinforce vocabulary comprehension. In this lesson, students can choose to do a sketch note, concept map, or compare and contrast for the vocabulary activity.

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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 consistently provide many opportunities for students to develop and show understanding of the science concept being taught in each lesson and communicate scientifically through writing and various forms of graphics such as diagrams and graphs.
- Every "Evaluate" section requires students to summarize what they learned and produce a scientific argument based on evidence using the "Claims, Evidence, Reasoning" scaffold. There is also a reflection portion of every Evaluate section that requires students to write explaining how their understanding of the subject changed and how this new information connects with previously learned knowledge.
- In the "Carbon Cycle" lesson, students read and write new terms on a "Language Development Worksheet" to further their knowledge of the vocabulary. Then, students act and think as scientists when they elaborate on how energy, matter, and scale relate to each other in human bodies. During the hands-on lab, students must create an accurate model of the carbon cycle to demonstrate understanding.
- In the "Human Influences on Global Climate" lesson, students use a map of their school and a digital thermometer to gather temperature data for three natural greenery locations and three human-made surfaces. After the students get the data, they create a bar graph and communicate, through writing, their analysis of their data.
- In the "Food Webs and Ecosystem Disruptions" lesson, students draw a food chain that represents the flow of energy from vegetation to moose to wolves while using arrows to show the transfer of energy. The students write about patterns they observe as they analyze a wolf-moose population graph. Students then think about and describe a scenario that would change the moose and wolf ecosystem in some way. Finally, students write about how a natural disaster or human impact might affect the transfer of energy in food chains.

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 consistently support students to act as scientists and engineers using phenomena to engage in learning throughout each unit. Students develop an understanding of the subject matter and construct explanations and/or solutions to the presented phenomenon.
- In the "Tropical Cyclones" (TEKS 8.10C) unit, students explore why tropical cyclones spin and how historical hurricanes were tracked. In the hands-on lab, students use research from "Hurricane Harvey" to understand what causes hurricanes and how hurricanes are tracked, and then create a model of a tropical storm to show different interactions between matter and energy in a tropical storm.
- In the "Properties of Water" lesson, students explain, "How is the water strider able to stay on the water's surface?" Students work as scientists as they engage in observations and experiments, create and use models, collect and analyze various types of data, and work with scientific explanations and sensemaking.
- In the "Models of Matter" lesson, students work as engineers by using engineering practices to figure out a solution to the following problem: "How can models of elements, compounds, and mixtures help engineers remove salt from ocean water?"

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- The hands-on labs, driven by phenomena and purposeful use of the SEPs, are used in all unit lessons.
    - In the “Waves and Energy” unit, opportunities to practice the SEPs include: 1) students plan and conduct an investigation to identify properties of transverse waves; 2) students develop and use a model to relate amplitude and frequency to the energy of a wave; and 3) students develop, test, evaluate, and refine a prototype model a lighting system that can be used to study bat populations without disturbing them.
- The phenomenon for the “Models of Matter” lesson is “How can models of elements, compounds, and mixtures help engineers remove salt from ocean water?” The students will ask questions as they build models in the quick lab. In the “Exploration 1” activity, students will continue exploring matter and develop an explanation for a pure substance. These activities align with enabling students to make sense of what happens chemically during desalination.

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Indicator 5.1

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

1	Materials prompt students to use evidence to support their hypotheses and claims.	M
2	Materials include embedded opportunities to develop and utilize scientific vocabulary in context.	M
3	Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.	M
4	Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations 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 use evidence to support their hypotheses and claims.
- Students are presented with a phenomenon (or an engineering problem) in the "Engage" section of every lesson. Here, students attempt to produce an initial explanation (or a solution to the problem). In the following "Explore" and "Explain" sections, students construct new knowledge. In the "Evaluate" section of each lesson, there is an opportunity for students to use evidence to support their claims in an effort to improve their initial explanations based on what they learned throughout the module.
    - In the "Student Digital" lesson "Climate and Weather," the "Driving Question" is "What causes Singapore and the Taklamakan Desert to have different climates?" In "Exploration 1, 2, and 3," students investigate how the Sun, atmosphere, and water cycle influence weather and climate. In the "Elaborate" section, students collaborate to research and explain how local weather and climate are influenced by the Sun, hydrosphere, and atmosphere. Students use their knowledge to support their explanations. Throughout the lesson, students investigate and gather data and

evidence, develop a claim, and then use evidence and scientific reasoning to answer the Driving Question.

- Each lesson has a "Driving Question" for the students to answer. At the end of each lesson in the Teacher Edition, information is provided on how to elicit student thinking for the claims, evidence, and reasoning ("CER") process. Students review the driving question and write a short draft of their claim by reviewing data collected throughout the lesson and highlighting information to use as evidence and reasoning. Students write short annotations next to each piece of data to indicate how it relates to the claim. The material in the "Support for Student Claims and Reasoning" section has students discuss their CER with other students to receive peer feedback. Materials also provide teachers tips and encouragement for students who need to revise their claim, identify further evidence, and/or adjust their reasoning.
    - In the "Chemical Reactions" (TEKS 8.6B) unit, students investigate how mass changes with baking soda and vinegar by measuring the mass of the reaction before and after using a balloon. Students use the "Driving Question" "How can you use a chemical equation to model what happened to the mass of the system?" to guide their formation of a claim. Students use the data they collected and evidence to support their claim.
    - In the "Wave Technology" lesson, the "Driving Question" is "How is modern society dependent on electromagnetic waves?" A student's claim would be: "Modern society uses EM waves in technology that helps make life more convenient." A reasoning for the claim would be: "EM waves make many technologies we use possible, such as long-distance communication with cell phones, wireless internet, advances in medical technology, and GPS."
    - In the "Properties of Water" lesson, students are expected to produce an explanation of the driving question that was developed from the phenomenon "How is the water strider able to stay on the water's surface?" The student materials ask students to use evidence to support their claims.

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

- Materials provide opportunities to develop and utilize scientific vocabulary in context.
- Every lesson has a "Science Words" section where the students recall vocabulary words from previous lessons. Students are provided with definitions and have to write down the word from the word bank, choose words from a choice of two provided, and match the word with its definition. The lessons also preview lesson vocabulary, where students are provided with the word and its definition. Students then take notes on the lesson vocabulary term as they encounter the words in the lesson.
    - In the lesson "Properties of Waves," students are provided a list of vocabulary words like *energy, wave,* and *transverse wave*, and they match them with the correct definition. In "Preview Lesson Vocabulary," students read about the vocabulary terms *frequency, wavelength,* and *amplitude*. Students are provided with different activities to help them remember the word. They can make a description wheel, a concept map, or a compare and contrast in their lab notebooks or journals in order to understand the vocabulary word.
    - In "Preview Lesson Vocabulary" of the "Properties and Systems of Matter" unit, students have a preview of the new terms: *element, compound,* and *mixture*, with a definition/description and picture of each term. Later, students practice science words from previous lessons, such as *atom, molecule,* and *matter*, by completing sentences with the correct term. Students are provided with different activities to help them

remember and better understand vocabulary, such as making a sketch note, creating drawings and/or diagrams, compare/contrast the terms *elements, compounds, homogeneous mixtures,* and *heterogeneous mixtures*, or putting together a concept map to show the relationship between vocabulary terms.

- In the Teacher's Guide "Models of Matter" (TEKS 8.6A) lesson, students have support for vocabulary words by writing them down and adding examples or pictures to show meaning. Students are also hearing and speaking vocabulary words throughout the lesson. Emergent bilingual students repeat vocabulary words with peers, utilizing methods like "I Say, You Say." Students use a "Language Development" worksheet to record new terms they encounter in the lesson. Materials also provide an anchor chart which students are reminded to use and refer to throughout the lesson.

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

- Materials incorporate argumentation and discourse throughout lessons to support developing content knowledge.
- The Teacher's Guide "Properties and Systems of Matter" (TEKS 8.6) unit has questions that require students to demonstrate an understanding of metals, nonmetals, and metalloids. For example, a teacher poses the following questions: "Would you expect calcium or sulfur to be shiny?" and "Would you expect nitrogen or lithium to be a better conductor of heat and electricity?" These questions help students activate and spark student discussions and elicit thinking through discourse.
- In the "Global Climate" unit, the teacher leads a group discussion regarding students' observations of photos of plesiosaurs, chalk, and microscopic fossil shells. In "Exploration 3," for the hands-on lab "Modeling Carbon Absorption in the Ocean (Part 2)," students explain how their models help show what occurs during the carbon cycle. They must also explain what parts of the carbon cycle are not included in the models and how these parts could be modeled.
- In the "Waves and Energy" unit, students are to explain and support their answer to the question "Which of the two waves on the graph carries more energy?." After students complete "Exploration 3," they are to "use an example from the exploration to explain why it can be useful to see wavelengths outside the visible spectrum." In the "Check Your Learning" section, students are to use "knowledge from the lesson to explain how white light entered the filter but only red light passed through." In "Path 3" from the "Elaborate" section, students propose a solution and "support their recommendation." At the end of each unit, students are to use argumentation to support a claim and justify with evidence and reasoning a response to the "Driving Question." The Driving Question for this unit is "How does a rattlesnake interact with waves?"

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 opportunities for students to create and present grade-level appropriate written and verbal arguments justifying their explanations to phenomena and/or solutions to problems using evidence acquired from the text and activities.

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- In the “Cell Structure and Function” lesson, students engage in exploring the cell system and relate the organelle to its structure and function before delving further to compare plant and animal cells. Students work in pairs or groups to research and examine the parts of leaf cells and root cells in plants while identifying the functions of the cell and its organelles. The students then present their findings in a diagram, infographic, report, or a model.
- In the “Variations and Adaptations” lesson, students research the advantages of adaptations after they explor and identify types of adaptations. Students work individually or with a partner to research an organism that has at least three different types of adaptations that help the organism survive and reproduce. Students have to provide an explanation that supports the adaptation. Students then create a poster or a presentation to present their findings to the class.
- The Teacher’s Guide provides an activity titled “Can You Explain It?” in the “Evaluate” section in every lesson. This activity provides a question regarding the phenomena or problem presented at the beginning of the lesson. Students must answer the question with their own claim and support it with evidence gathered during the lesson. Students then share their work with their peers for feedback on the soundness of the arguments made to support their claim.
    - The Teacher’s Guide “Carbon Cycle” (TEKS 8.11C) unit asks the question “How would carbon from a prehistoric marine reptile end up in a piece of chalk today?” At the end of the lesson, students must form and write a claim and back it up with evidence and reasoning before discussing their claims, evidence, and reasoning (“CER”) with fellow students.
    - The Teacher’s Guide “Natural Influences on Global Climate” (TEKS 8.11A) unit asks the question “How do natural causes of climate change relate to the extinction of the dinosaurs?” At the end of the lesson, students must form and write a claim and back it up with evidence and reasoning before discussing their CER with fellow students.
    - In the “Properties of Water” lesson, students are expected to produce an explanation of the “Driving Question” that was developed from the phenomenon “How is the water strider able to stay on the water’s surface?” The student materials ask students to use evidence to justify their claims.
    - In the “Climate and Weather” unit, the Driving Question is “What causes Singapore and the Taklamakan Desert to have different climates?” At the end of the lesson, students must form and write a claim and back it up with evidence and reasoning before discussing their CER with fellow students.

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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 consistently provide guidance for the teacher on anticipating student responses and the use of questioning to deepen student thinking.
    - For example, in the "Waves and Energy" unit, the "Support for Student Answers" section directs the teacher to ask students questions such as "How did energy change when you pulsed more or less often?" and "When were your wave movements bigger or smaller?"
    - For example, in the "Properties of Waves" unit, the material directs the teacher to ask students questions such as "If you wanted to produce a wave that required a very high input of energy, what would need to be true about the frequency and amplitude of that wave?" and "How does energy flow through the system in this investigation?"
    - For example, in the "Cell Structure and Function" lesson, students explore the cell system. The students make a sketch that shows the differences between the cell membrane model they made to the actual cell membrane. The material guides the teacher to support the students by telling the teacher to look for certain aspects of a cell membrane that the classroom model did not show: embedded molecules, such as

proteins; phospholipid bilayer; and division between the inside of the cell and outside environment.
    - For example, in the “Influences on Weather and Climate” lesson, the teacher leads a group discussion about what students observe on the map before they brainstorm questions such as “What factors affect the climates of this location?” and “Do any factors also play a role in the climates of Singapore and the Taklamakan Desert?”
    - For example, in the “Food Webs and Ecosystem Disruptions” lesson, the quick lab learning objective is for students to model and understand the concept of how changes in population size might affect a food web. Students start by analyzing a moose-wolf population graph. Some questions the material includes to guide this learning are as follows: “Where on the graph is an energy transfer from plants to moose the greatest? Where on the graph would you expect populations of plants that moose eat to be the largest (the smallest); based on this example, describe the relationship between the wolf population and the population of plants the moose eats.” For each question, the material includes a sample answer.
- Materials provide descriptions for teachers of what discourse might look like.
    - For example, in the “Elaborate (Path 2)” section of the “Food Webs and Ecosystem Disruptions” lesson, the material provides prompts for the teacher to work with students in small groups. The following two questions are posed to students: “What are some real-life changes to an environment that would affect food webs?” and “Do you think population changes, natural disasters, or human intervention disrupt food webs more?” Once the small groups find reasons to support their answers to these questions, student discourse between two groups begins: Do both groups agree or disagree? The material says the student discussion should include a claim that either population changes, natural disasters, or human intervention disrupt food webs more; reasons to support the claim; and a suggestion that students may want to consider the impact, duration, and long-term consequences of the disruptions they are comparing.

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

- Materials consistently provide guidance for teachers to support students' development and use of scientific vocabulary. There is guidance in the Teacher's Guide for lesson vocabulary, academic vocabulary, and prerequisite vocabulary. In all the lessons, in every grade level, the Teacher's Guide provides support for teachers to help students develop and use vocabulary in every “Engage” section, in the “Science Words” section for “Support for Vocabulary,” and in the “Be Creative” activities to help students use the vocabulary words in context.
- In the “Food Webs and Ecosystem Disruptions” lesson, the “Vocabulary Overview” breaks the vocabulary down into three sections: “Lesson Vocabulary, Academic Vocabulary, and Prerequisite Vocabulary.” In the same unit, the material includes a review of the prerequisite vocabulary after the “Engage” “Can You Explain It?” section. Students are to match the terms *energy, system, consumer, food chain,* and *producer* to the correct definition. Afterward, students preview the lesson vocabulary, which includes a “Language Development Worksheet” and a “Be Creative” activity. In “Exploration 1,” students are given a picture with letters representing specific vocabulary words such as *abiotic factor, community, population,* and *biotic factor*, with a description of each. The student then applies what they have learned by matching each description to the correct level of organization in the ecosystem. One description is “plants and animals in an area,” and the correct vocabulary response is *community*. A differentiation

challenge in this "Exploration 1" section is for students to show the connections between the different vocabulary terms using a graphic organizer. The material prompts the teacher to ask, "How can a graphic organizer show relationships and hierarchy?"

- The material in the "Stability and Change in Ecosystems" unit directs students to use vocabulary from the lesson to develop a claim that answers the "Driving Question." The Driving Question for this unit is "How could a sudden increase in a locust population affect the food web where locusts live in Ethiopia?" Students should use the terms *food web, energy, transfer,* and *consumers* in their written claim and reasoning.

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

- Material includes teacher guidance on preparing for student discourse and supporting students' both written and verbal claims in various parts of the lessons.
- In the "Teacher's Corner," the material provides a lesson for teachers covering "Best Practices for Developing Evidence." This article and video go into how to use evidence notebooks to organize their thinking, record observations, and perfect their language skills. The material states that "Into Science helps you (the teacher) teach students to support a claim by arguing scientifically using evidence they (the students) gathered."
- In the "Teacher's Corner" section "Make Science Fun: Facilitating Collaboration," the material offers instruction on how to help student collaboration be successful in the classroom. For example, some tips suggested by the material to promote collaborative skills are to make sure students feel safe disagreeing with the teacher and each other, give students examples of how to properly respond to others, assign work that relates to situations in the real world that the students are excited about already, and prompt productive discourse among teams by asking questions like "What do you mean by that?" or "Can you explain what you're seeing?"
- Materials provide guiding questions for teachers to use during the "Engage" section of the "Food Webs and Ecosystem Disruptions" lesson. Students watch a clip on locusts and how an increase in a locust population affects the food web. Afterward, the teacher asks, "What do you wonder about the locust and locust swarm?" In order to help scaffold, suggestions are given for sample questions like "How does a locust swarm change an ecosystem?" and "How do locust swarms affect other populations?" The material provides numerous questions on the same topic to facilitate students' thinking.

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

- Materials provide consistent support and guide teachers in facilitating the sharing of students' thinking and finding solutions. Facilitated group discussions can be found throughout the Teacher's Guide.
- In the "Newton's Second Law of Motion" lesson, the teacher elicits student thinking while leading a group discussion after "Exploration 1: Analyzing Newton's Second Law of Motion." In this particular example, after the students finish the "Engineer It" activity, the teacher asks students to identify another product involving acceleration and brainstorm a list of criteria that engineers should consider when designing the product.
- In the "Can You Explain It?" section of the "Force and Motion in Systems" unit, the teacher leads a group discussion after viewing the "Phenomenon Video." Students share their observations from the video and brainstorm questions as a class. Students, as a whole class, work to group

the questions into categories. The material suggests that if students are struggling to generate questions, the teacher should encourage students to look for clues about the differences between the objects and what remains in common.

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Indicator 6.1

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials consistently provide formative and informal assessment materials. For example, in the online resources, under "All Resources," there is a tab on "Assessment." All the assessments are available online, in a PDF file or an editable Word document. The assessments include Pre-assessments, unit Readiness Checks, Formative Assessments (Apply What You Know, Lesson Check and Evidence Notebooks), Making Sense of Phenomena Formative Assessments, Lesson Quizzes, unit Performance Task, unit Tests, "You Solve It!" Simulations, and Benchmark Assessments: Mid-Year Test and End-of-Year Test.
- For the "Waves and Energy" unit, many assessment resources are found under the Discover Tab (All Resources) in the Featured Category: Assessment. There are quizzes on "Properties of Waves and Wave Technology" with two different options, A or B for each quiz. There are summative assessments, again with 2 options, option A or B. The TEKS summative test includes SEPs and RTCs when applicable and consists of 12 items on average with approximately 50% multiple choice, 40% new item types, and 10% short constructed response items. Both quizzes and summatives are available in an editable, printable format or can be graded online. When graded online, reporting capabilities are available to provide data by student or by class.

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

- Materials consistently indicate which TEKS are assessed and assess all student expectations as outlined in the TEKS by grade level. For example, the end of each lesson (Evaluate section) contains a TEKS Quiz while in the Teacher's Guide, there is an Item Analysis Chart that shows which TEKS are covered and how many times it has been tested in the entire chapter along with the question number.
- Materials contain details in the Scope and Sequence that identifies the specific TEKS, SEPs, and RTCs that it will assess per unit. In the Scope and Sequence for the "Stability and Change in Ecosystems" unit, the student assessments will cover SEPs 1 through 3, RTC TEKS 5A, B, D and G, and TEKS 8.12. In the TEKS correlations, materials provide links that will take the teacher to specific questions, quizzes/tests, and skills banks that align with specific TEKS and RTCs. For example, if the teacher is looking for a quiz item that will assess a student's expectation for TEKS 8.6D, using scientific practices to plan experimental investigations, the link will take the teacher to item 4. Item 4 has students identifying 3 observations from a lab investigation that will show that a solution is a strong acid. Materials also include both TEKS correlation for each assessment item and the answer keys for every assessment.

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

- Materials consistently integrate the content TEKS, the Science and Engineering Practices, and the Recurring Themes and Concepts in assessments as applicable. For example, materials provide a supplemental item bank of SEP and RTC-aligned items for the teacher to utilize as they see fit. Some features of the Skills and Themes Bank are these items can be added to quizzes or summatives as needed to supplement content, and the bank consists of anywhere from 35-80 items that are presented as multiple choice, drag-and-drop, hotspot, and multi-select items.
- TEKS titles and numbers are displayed at the top of each assessment. For example, Science and Engineering practice for TEKS 8.1-8.5 has a specific assessment instrument for recurring themes and concepts.
- Materials include "You Solve It" Simulations for students to demonstrate their ability to problem-solve and perform TEKS. These performance-based tasks reveal students' understanding and mastery of the content as well as their thinking strategies by asking them to apply science concepts to real-world situations.
- The Teacher's Guide provides online resources such as the Item Analysis Chart at the end of each Lesson, which covers all the TEKS along with the SEPs and RTC that are covered in the end of lesson TEKS Quiz.

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

- Material consistently poses questions in assessments that require students to apply knowledge and skills to new phenomena or problems. For example, materials include "Making Sense of Phenomena," which is part of a formative assessment outline in each lesson that gives students the chance to revisit anchoring phenomena and apply Claims, Evidence, and Reasoning models to demonstrate learning. Remediation for struggling students is given to teachers, which helps students connect investigative phenomena back to anchoring phenomena.

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- In Test A for the "Properties and Systems of Matter" unit, a short answer test question has the student looking at the phenomenon of capillary action when a cut white flower is put into a vase with blue-colored water and the flower turns blue. The student has to explain how adhesion and cohesion are involved in the transport of water. This test also includes a two-part question for which the student first must identify the chemical reaction that supports the claim and second, determine which statement best supports their previous response, in other words, the explanation for their choice.
- Material also includes different Performance Tasks centered around real-world phenomena. The Performance Task "How do lionfish affect relationships in local ecosystems?" has students research how the introduction of lionfish has caused changes to the existing interactions among native populations and provide possible solutions for the problem. The students must define the problem, conduct research, construct an explanation, recommend one or more solutions for controlling the population of lionfish in the Gulf of Mexico, and prepare a presentation that explains how their recommended solution would address the problem.

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Indicator 6.2

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

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

Meets | Score 2/2

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

Materials include information and/or resources that provide guidance for evaluating student responses. Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level. 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 consistently provide guidance on evaluating student responses. For example, when assessments are given on Ed Online, there are reporting capabilities that provide data by class or student. From these reports, students can be grouped by ability level. This provides teacher feedback and guidance on what standards need reteaching. Under the Reports tab, in the Assessment Report section, a detailed report is provided for each TEKS. It also displays Assessment Proficiency which can be exported in CSV format or printed. This report allows ability grouping and gives teachers data to foster intervention for students who may not have mastered lesson TEKS. A list of TEKS is provided, as well as individual sample students to show data and facilitate future lessons.
- Materials consistently provide guidance for evaluating student answers only in Quizzes and Tests. There is a resource with the title "Assessment Guide Answer Key." This guide includes a key for every item in every quiz and test that appears in the program, along with a rationale for each choice that explains why a given wrong answer is wrong. This guide also contains a rubric to score student answers for the constructed response-type items. This guide can be accessed through the assessment section of the all resources section of the Discover page on the program website.

- In each unit, the materials provide lab scoring criteria for each lab to rate students or groups in their participation in and understanding of the lab. The teacher will also find examples of acceptable answers and specific components to look for to guide them in evaluating student responses for the check for understanding that goes with each lesson, as well as for the claim-evidence-reasoning written response that students complete at the end of the unit. In the "Global Climate" unit, the Engage "Making Sense of the Phenomenon" points out two pieces of evidence that students should discover and apply to the Driving Question for the unit. It also provides the teacher guidance on helping students group and select questions that relate to the Driving Question. In the Evaluate section, the material directs the teacher to check in as students complete their CER and includes tips for positive feedback. Some tips it provides are positive reinforcement for good examples and encouragement and guidance for those who need to revise. The material provides example claims and what support students should include to justify the claim.

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 consistently provide a teacher's guide that provides teachers with suggestions to direct to students as responses to checks for understanding. For example, the material provides various charts, graphs, and other images in Ed reports that will support the teacher in responding to data to inform instruction and facilitate tracking of student progress. The reports available are Assessment Reports that show information about student performance, Standards Reports that indicate whether students are meeting the state standard objectives, and Growth Reports that calculate a student's targeted and anticipated growth across the school year.
- Teachers can customize reports by skill, student, class, and grade level. The reports are color-coded to differentiate between below-level, on-level, and above-level for a quick visual. These reports provide guidance for targeted intervention for individual students and/or the whole class.
- Material provides guidance to the teacher on grouping recommendations based on assessment data. In the Reports Tab, teachers will find recommendations for student grouping based on skill and performance levels.

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

- Materials provide tools that consistently relay relevant information for teachers to use when planning instruction, intervention, and extension. For example, materials provide extension resources relating to concepts within the lesson. In the Hands-On Lab "Variation and Adaptation," students must research and create a project demonstrating changes in the polar bear population according to lab scoring criteria. Guiding student questions are given for teachers to informally check for understanding and predict and explain students' projects. Support for students provides differentiation and extra support for claims and reasoning detailing feedback teachers are directed to provide students during intervention.
- Materials provide relevant information in the Assessment Report found under the Reports Tab. The reports can be broken down into an item analysis and also show the two lowest-performing standards. The material in this Assessment Report provides recommendations for grouping and

will produce a computer-generated grouping based on student mastery. It also allows the teacher to customize groups. The teacher can use the information from these reports to differentiate instruction, extension activities, and reteaching.

- Materials include Assessment Guide Answer Keys for all quiz, test, and skill bank items. In the Assessment Guide informational sheet, the material provides reteaching support for all assessment items. If a student missed Unit 8, question #3, a drag-and-drop type question, the reteaching support states that students may need to review the systems by researching and then summarizing their functions. This guide also contains a rubric to score student answers for the constructed response-type items. This informational sheet provides a rationale for "why" answer choices are incorrect. The guide contains guidance for reteaching concepts related to each assessment item. This information about the content or skill students need to review, as well as suggested teaching strategies to support that review, can be found in the digital Answer Key.

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 student resources for teachers to use in response to student data. For example, materials provide direct instruction that includes background information, group discussion, suggestions for struggling students, extension and challenge activities, as well as ELPS resources for differentiation. In the Discover Tab, All Resources section, the teacher has access to extra resources such as Video-Based Projects like "A Prosthetic Hand," Project Worksheets, and Performance Task Activities.
- ELPS materials support emergent bilingual students with additional resources such as vocabulary builders, verbal/written question and answer sessions, and lab activities in each lesson to build concepts and reinforce lesson themes.
- Materials also provide online support data reports and recommendations for grouping students according to assessment results. Reteaching support for teachers can be found through Ed online. Materials provide a resource for reteaching in the Planning for Differentiation for the "Global Climate" unit, a Supplemental Lesson: "Energy and Matter in Ecosystems." The material offers many of its resources in different formats such as Word, PDF, or Online Interactive Lessons for teacher/student choice. In this unit, the material provides a demonstration for struggling students to help them visualize how much of the atmosphere is carbon. Materials in the Evaluate/Assessment section state that "more review and remediation strategies are in the Answer Keys on Ed."

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Indicator 6.3

Assessments are clear and easy to understand.

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

Meets | Score 2/2

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

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

- Materials consistently provide assessments that contain items that are scientifically accurate and free from errors.
    - For example, the "Applying Newton's Laws of Motion" Quiz A correctly labels and identifies two of the forces acting on a plane as thrust and drag. The image states that these forces, along with *lift*, function to keep the airplane in the air. Students must identify which answer would be correct regarding the relationship between thrust and drag of an airplane flying at a constant speed.
    - The "Chemical Reactions" Quiz A is free from errors when representing chemical formulas and equations. The quiz correctly uses coefficients, subscripts, element symbols (upper/lower case as appropriate), plus signs, and arrows to represent chemical formulas and chemical equations throughout the assessment.
- Assessments consistently avoid bias.
    - For example, the "Properties and Systems of Matter" unit test assesses knowledge and skills learned in the unit and contains phenomena/situations that every student comes across regardless of their background.
    - In grade 8, in the "Forces and Motion in Systems" unit, the assessments are scientifically accurate information regarding forces and avoid bias with multiple exploration activities, provide background knowledge, and enhance learning to target all students from various backgrounds and ethnicities.

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

- Materials consistently include assessment tools with clear pictures and graphics that are developmentally appropriate.
- The Evaluate section Practice Questions of the "Force and Motion in Systems" unit has practice questions with clear and age-appropriate images. The image graphic shows a boy pushing a cart with and without boxes to illustrate the force used.
- In the "Cell Structure and Function" lesson, the plant and animal cells are clear with legible labeling of organelles inside the cells
- The "Properties and Systems of Matter" unit test provides clear and developmentally appropriate pictures showing particle models of various substances, and the table that shows the properties of acids and bases.
- In the "Ecological Succession" Quiz A, the stages of secondary ecological succession are clear and easy to identify as it progresses through soil to grasses to shrubs to trees and finally large trees.
- In the "Patterns in the Atmosphere" Quiz A, the weather maps do not contain excessive details, instead only showing the low and high-pressure isobars and jetstream flows clearly marked with a bold black arrow.

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

- Materials include a formal assessment guide for teachers to ensure consistent and accurate administration of assessment tools.
- Materials include Ed online Teacher Help Tools that offer customizable assessments to provide teacher guidance on creating and administration of assessment tools.
- Materials include the Science Assess and Differentiate Instruction section in Ed online. This section contains a beginning of the year and formative assessments guide for online assessments, assigning assessments, reporting, and options for differentiated instruction.
- Materials provide an assessment guide referred to as Assessment Front Matter which provides guidance and details about each type of assessment. This includes tips for classroom discussions, Check Your Learning, quizzes, and summatives. This guide supports the teacher in the types of assessment tools that are within the material.
- Materials offer two options (A and B) for both quizzes and summative assessments. Both A and B options are equivalent, accurately assess the same TEKS and skills consistently, and can serve as an accurate reflection of student progress and mastery.

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

- Materials consistently include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of learning goals.
- Materials include guidance for teachers to offer accommodations for ELPS and EL Learners. The ELPS includes assessments that are in multiple languages and offer review and remediation strategies in the Answer Keys in Ed online. These assessments are aligned to the learning goals and show progress monitoring with TEKS bullets in each unit as well as assessment reports that highlight standards met or unmet for every student.

- Materials provide on-level and modified versions as well as audio support for all assessments. Another example is found in the interactive online version of the student edition. The video clips use a closed-captioning feature to help all students see and hear scientific content.
- Materials provide text-to-speech features in the online student edition. Students can play and pause the text read to them for the assessments. They also can adjust the volume. Under the Accessibility options, students can choose Color scheme, font size, and zoom features while taking the assessment.
- Materials include a Skills and Themes bank that teachers can use to modify and add items to quizzes and summatives. With the use of the Skills and Themes bank, a teacher can customize quizzes and summatives to differentiate for student learning levels.

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Indicator 7.1

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials include teacher guidance for scaffolding instruction and differentiating activities for students who have not yet achieved mastery.
    - For example, in the "Climate and Weather" unit, teachers can model how to orient the student Earth balloon models to rotate them in the correct direction and be certain all the students are looking down at the north pole of the Earth balloon model as it is rotated.
    - In the Engage section of the "Build Objects" lesson, students who require extra support can be instructed that the material has to make an object, but their object can be non-functional, and they can attach the given materials in any way they choose.
- The Planning for Differentiation section of the Teacher's Guide for every unit provides guidance for teachers.
    - For example, in the "Properties of Waves" lesson, the teacher can find materials for reteaching and extension resources. Some of the extension activities that the teacher can access digitally are the Design Wave Interactions Project, a performance task "How can laser tag be improved?" and "You Solve It: How Can WE Harvest Energy from Ocean Waves?" After the quick lab, "Analyze Wave Energy in a Human Wave," a differentiation challenge for students is to extend the simulation to model a longitudinal wave instead of the transverse wave made in the original lab.

Materials provide enrichment activities for all levels of learners.

- Materials provide enrichment activities for all levels of learners

- Lessons are scaffolded to target most levels of learners. In the "What Are Acids and Bases" lesson, students activate prior knowledge with a reading activity, then elicit vocabulary, note-taking, collaboration, and then a writing activity based on level of writing.
- In the online Student Edition, the Engage section for each TEKS has a variety of different ways to master the concept for the students. It gives the students the ability to choose what path they would take in order to show an understanding of the concept.
- There are multiple Elaborate sections in all units, which allow students to extend their knowledge and apply new knowledge to new situations.
    - For example, in the Elaborate section for the "Models of Matter" lesson, the students can choose to further their knowledge by selecting Science Themes, People in Science, Wastewater Treatment, and Desalination Risk/Benefit analysis.
- Each lesson provides Exploration sections for the student to learn the concept encompassing some different learning styles. In the "Models of Matter" lesson, there are four different Hands-on Labs for the students. The lab covers modeling the classification of elements and compounds, separating homogeneous and heterogeneous mixtures, and modeling and classifying elements, compounds, and mixtures.

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

- Each lesson provides scaffolding for vocabulary, extension or reteaching activities, challenges, and questions for teachers to use as a means of supporting learning for students.
- In the Teacher's Corner, there is a variety of guidance for teachers in the form of videos and articles.
- There are multiple Elaborate sections in all units, which allow students to extend their knowledge and apply new knowledge to new situations.
- In the "What Are Acids and Bases" lesson, students activate prior knowledge with a reading activity, then elicit vocabulary, note-taking, collaboration, and then a writing activity based on level of writing. Lessons are scaffolded to target all levels of learners.
- In the "Models of Matter" lesson, for students who are struggling with how to make an object in the quick lab, "Build Objects," the product suggests telling students that the object does not need a specific function and that the arrangement is not important. For vocabulary, one given suggestion is for students to write down the terms and add examples or pictures. The Planning for Differentiation section of the material provides an extension project, Simple or Complex, for students who are ready to go deeper.
- Throughout the "Models of Matter" lesson, the material provides questions to support students in the productive struggle of applying hands-on experience with the concept. For example, after the quick lab, "Build Objects," the teacher asks students, "What are some ways you were able to make your two objects different?" This will relate back to the learning objective for the quick lab, in which students are to engage with the concept of combining atoms in different ways, making different substances.

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Indicator 7.2

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials include a variety of developmentally appropriate instructional approaches such as inquiry-based learning centered around real-world phenomena, collaborative learning, hands-on explorations, a Claim-Evidence-Reasoning (CER) approach to communicate findings with scientific explanations, and an instructional model centered around a driving question about a real-world phenomenon.
- In the "Cell Structure and Function" (TEKS 8.13A) lesson, students work to identify functions of cell structures. The teacher facilitates learning by exploring a model of a cell membrane before students use materials to construct and demonstrate their learning. Teachers check for understanding after each exploration lab by asking questions.
- In the "Properties of Wave"s unit, students model the energy in a human wave as a class before watching a video on rattlesnakes to answer the question, "How do rattlesnakes interact with waves?" Students work in groups to brainstorm their information regarding rattlesnakes' behavior to waves. Afterward, students match definitions with the vocabulary words for the unit, give a real-life example explaining how energy moves through a wave, and individually use models and graphs to better understand the concept of waves.

- In the "Influences on Weather and Climate" lesson, students observe a real-life phenomenon about the states of matter. Students generate questions they have about this phenomenon and attempt to explain why and how this phenomenon occurs. Students answer some of the selected questions, which collectively help elicit student prior knowledge. An anchor Phenomenon is visited in the Evaluate section, and students' initial explanation of the phenomenon is revised based on the new information and evidence collected in the Explore sections.
- In the "Climate and Weather" unit, the driving question is, "What causes Singapore and the Taklamakan Desert to have different climates?" The background for the teacher includes information on factors that influence climates, including latitude. The lesson includes three Exploration activities in which students model how solar energy affects different parts of Earth's surface differently, use models to explain how wind forms, and how proximity to large bodies of water affects climate. Students use tools such as maps and globes as they investigate. At the end of the lesson, students review the evidence and data collected and communicate their findings with a written CER.

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

- Material consistently uses flexible grouping such as independent learning, small group activities, paired work as well as full class activities.
- In the "Cell Structure and Function" (TEKS 8.13A) lesson, students work both independently and in small groups to identify functions of cell structures. The teacher facilitates learning by exploring a model of a cell membrane as a whole class. In pairs, students draw the smallest functional unit in their body. Students work in small groups and compare images of cells and a sports stadium. Students then look at an illustration to learn more about the cell. They are provided with the function of the cell organelles, and the students have to make a model depicting their definition. The plans are adjusted by the students if their model is not functional. Teachers check for understanding after each exploration lab by asking questions, and students provide responses.
- In the "Influences on Weather and Climate" lesson, students are introduced to a phenomenon where they can engage with it in collaborative groups or as a whole class. Students have many opportunities to answer questions and reflect on what they observe during the lesson. This can be done individually, in collaborative groups, and as a whole group.
- In the "Energy and Matter in Ecosystems" unit's Exploration 2 "Analyzing Carbon Cycle Processes," the students are to work with a partner or small group to propose a solution. In the "Can You Explain It?" section, the material directs the teacher to have students work in small groups to make observations about marine reptiles and chalk. In the Explore/Explain "Engineer It" section, students collaborate with a partner to research and write about inexpensive methods for reducing the amount of carbon in the atmosphere. At the end of the lessons, the Practice Questions from the "Check Student Understanding" section are for independent work.

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

- Material provides guidance to teachers on how to use the instructional strategies for student mastery of the concept.
- In the" Cell Structure and Function" (TEKS 8.13A) lesson, students work to identify functions of cell structures. The teacher facilitates learning by demonstrating exploration of a model of the

cell membrane before students use materials individually to construct and demonstrate their learning. Teachers check for understanding after each Exploration lab by asking questions, and students provide responses.

- In the "Influences on Weather and Climate" lesson, students observe a phenomenon as a class before having a teacher-led whole class discussion. Students work in collaborative groups to conduct investigations and make sense of models (physical and pictorial models and animations of differential heating of the earth's surface, convection currents in the atmosphere, high and low pressure systems, etc.). Students work independently on answering questions in the "Check Your Learning" portion of each Explore section and the "Summarize/Explain It" portion of each Evaluate section.
- There is detailed guidance in the Teacher's Corner section. For example, an article with the title "Make Science Fun: Facilitating Collaboration" provides ample guidance on facilitating collaboration in groups.
- In the "Characteristics of the Universe" unit, students work with a partner to discuss observations regarding the color of the sun for the quick lab, "What Color is the Sun?" The teacher engages students with a teacher-led whole group discussion after the video before students work in small groups to record their observations about activity on the sun's surface. In the quick lab "Observe a Light Source," the material directs students to work together with a partner or group to discuss the relationship between distance and apparent magnitude. For the CER and practice questions, the material suggests students work independently; this is the same for every CER in every lesson.

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

- Materials take an approach of equitable representation when it comes to diversity. Diversity in images and references is equitable based on ethnicity, gender, and age. Information in teacher guidance documents, student materials, scientific texts, and assessments does show diversity and is equally represented in age, race, ethnicity, body shape, size, and hair texture.
- The "Why It Matters" section on the Reflection screen of each lesson gives students an opportunity to make connections to their own life or community.
- Materials include representations of rural and urban communities, including pictures such as sheep shearing, corn crops, a NASCAR racetrack, a school bus dropping off students, and steppe farming.
- Materials include images that show scenery from global communities, including a family from Australia eating together, a person working in a rice field, and a Canadian scientist.
- The labeling of images with demographic information is included in alternative text (ALT text), as appropriate. Students who can see the images can interpret the demographics for themselves. Students using screen readers can access this information through the ALT text.
- Materials positively portray a diverse group of scientists, engineers, and people who have contributed to science in the Elaborate Overview found in each unit. For example, in the "Properties and Systems of Matter" unit, Path 4 in the Elaborate Overview spotlights Henry Mosley, a physicist who used X-rays to predict unknown elements. Other people that students can learn about throughout the product include, but are not limited to, Lie Suo, a mechanical engineer, Dr. Simon Nicholson, an international relations scholar, Rodolfo Dirzo, a terrestrial ecologist, and Dr. Lynn Margulis, a biologist.

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Indicator 7.3

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

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

Meets | Score 2/2

The material meets the criteria for this indicator. Materials include listening, speaking, reading, and writing support 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 encourages strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.

Evidence includes but is not limited to:

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

- Materials include guidance for linguistic accommodations commensurate with various levels of English language proficiency as defined by the ELPS. There is detailed guidance for teachers to support EBs in the Planning for Differentiation section of the Teacher's Guide. The guide recommends teachers to clarify the meanings of terms and model completing sentence frames to help students express understanding.
- For each TEKS there is an ELPS Mini-Lesson which is broken down into three sections: Clarify Ideas, Respond to Questions, and Collaborate. The ELPS Mini-Lessons provide strategies and scaffolding for Beginning, Intermediate, Advanced, and Advanced High. The Mini-Lessons model fluent reading, use gestures, short explanations, and pictures to support comprehension.
- The ELPS Mini-Lesson in the "What are Acids and Bases?" (TEKS 8.6D) lesson provides sequenced and scaffolded reading and writing accommodations from Beginning, Intermediate, Advanced to Advanced High. The read-aloud text models fluent reading and re-reads to pause for explaining vocabulary with gestures, explanations, and pictures to support comprehension.
- In the "Chemical Reactions" lesson, students preview a passage and review the image of baking soda and vinegar and discuss what they notice. To encourage students to talk, sentence frames such as "When vinegar and baking soda are mixed together, they form a…." are used. A listening focus is set for the students. They are to listen for the definition of chemical reaction and an example. To help students scaffold, beginner EB's are provided with the sentence frame, "When one or more….change to form one or more new ones, it is called a chemical reaction." For Intermediate EBs, a word bank is provided to clarify understanding. For Advanced and Advanced

High EB's, students respond to questions accompanied by examples. EB students are given graphic organizers to write down information from the lesson.

- In the unit "Characteristics of the Universe," on Day 1, the teacher is to clarify the meanings of terms and model completing sentence frames. Then the students use the models to practice making and using complete sentences. Students are to express their knowledge in ways that are accessible to them such as write the term in a language they know, then look it up in a bilingual dictionary and use visuals, gestures and other non-verbal cues to reinforce understanding.

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

- There are opportunities where students are expected to "express their understanding in ways that are accessible to them, such as writing a term in another language they know then looking it up in a bilingual dictionary to confirm its meaning."
- Materials include "Language X-Rays," with one to accompany each lesson in the program. These are resources specifically designed for teachers who do not speak students' first language. Cognates are covered in the "Language X-Rays" that are available with the program, with one for each TEKS Lesson.
- The planning pages for the "Chemical Reactions" (TEKS 8.6B,E) unit provide emergent bilingual support. These lessons include clarification of meaning of terms and modeling completing sentence frames to help students express understanding. Students express knowledge by writing a term then looking it up in a bilingual dictionary for meaning.
    - Within the electronic Student Edition, every glossary term has been hyperlinked. Clicking on the term will reveal the term and definition in English, Spanish, and Vietnamese.
    - Materials include a Multilingual Glossary, with translations of terms and definitions for 12 languages: English, Spanish, Vietnamese, Chinese, Arabic, Tagalog, Korean, Brazilian Portuguese, Russian, Punjabi, Haitian Creole, and Hmong.
- In the unit "Characteristics of the Universe," the material reminds the teacher that it is helpful for EBs to hear and speak the words and to go through the vocabulary list using an "I say/You say" routine several times. The material also provides a Language Development Worksheet to record new terms found in the lesson and a reminder to review terms on the Vocabulary Anchor Chart.

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Indicator 7.4

Materials provide guidance on fostering connections between home and school.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials provide information to be shared with students and caregivers about the design of the program.
- In the Teacher's Corner "Reaching Out With Home Letters" section, the materials provide information about the design of the program through a "Beginning of the Year" letter. This Beginning of Year Home Letter is an editable document and explains the basic design and why of the program. It includes statements such as "provide your child with opportunities to step away from their books or computers and actively participate," "hands-on" explorations, "investigate engineering," and "develop skills they can apply to other situations." Being editable, the teacher can include more information as needed to share with caregivers about the overall design of the material and how it will be utilized in the classroom.
- In the Teacher's Corner, there is a section called "Step Inside the Family Room." The purpose of the Family Room is "to help families and caregivers become active partners in teaching." The teacher first shares the Family Room Video with caregivers through email. According to the video, caregivers will find general tips on how to navigate Ed, the online resource for students.
- Materials provide digital Home Letters in the Teacher's Corner tab and also the "Discover" tab. The Home Letters are available for each unit and provide specific designs of the product, including TEKS and titles that explain each unit/lesson.

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

- Materials provide information to be shared with caregivers for how they can help reinforce student learning and development.
- In the Teacher's Corner, in the section called "Reaching Out With Home Letters," the materials provide information to share with caregivers. The materials include a set of letters for each grade level and for each unit within the grade, with details about the learning going on in class and age-appropriate suggestions that families can use to learn more about science and support their child. According to the material, the Home Letter for each unit describes the focus of each unit and the Performance Expectations for students, and includes additional activities that families can do at home to reinforce their child's learning. These Home Letters are editable files so that the teacher can personalize them, add details about class, provide helpful websites, or include instructions for upcoming assignments.
- Home letters are one of the resources found on the Teacher's Discover page. In "Reaching Out With Home Letters" from the Teacher's Corner, the materials include a sample letter for "Engineering Design," which contains several topics for caregivers. The first topic is "What We're Doing," and it covers the lesson objectives. For example, "by the end of this lesson, your child will 1) design solutions to a problem and 2) investigate how engineers improve designs to meet needs or wants." The second topic is "At-Home Activity" and has short activities for the student to try at home. For example, the student is to find examples of technology around them and then identify the problem that the item was engineered to solve. The letter also contains online Ed helpful resources, a Science Summary, and a Preconception Alert, in which caregivers and students can look at and discuss some misconceptions about the topic.
- Materials include product support for teachers to connect with caregivers in the "Step Inside the Family Room" section. This section provides a Teacher's Corner Team, where they'll find a collection of quick, easy-to-follow tips and explanations that help families and caregivers reinforce their child's learning.

Materials include information to guide teacher communications with caregivers.

- Materials provide information to help the teacher communicate with caregivers.
- In the Teacher's Corner, "Reaching Out With Home Letters" section, the materials include encouragement to teachers to keep parents and caregivers informed about what their child is learning in school and how to reinforce it at home. In order to promote this partnership, the materials provide Home Letters to help teachers stay connected and communicate important information.
- In the Teacher's Corner of the material, there is a section called "Step Inside the Family Room." The materials say this can be used to "empower the adults in your students' lives to act as your unofficial co-teachers."
- Materials include a Beginning of the Year Home Letter that gives a grade-level introduction to the units and lessons that will be learned throughout the year. These guide communication and open with information to be shared between teacher and caregiver.
- Materials provide Home Letters in the Teacher's Corner tab and also the Discover tab. The Home Letters are provided for each unit. The letter details a Science summary of the lesson as well as at-home activity and material resources.

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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 “Scope and Sequence,” provided in the “Dig into the Details” as well as the “Teacher Edition,” lays out the vertical alignment of the TEKS along with the individual lessons in each unit.
- The year-long “Scope and Sequence” in “The Guide” also includes the SEPs and RTCs by grade band (K-2, 3-5, 6-8). Additionally, on the left-hand side of the document, each unit is labeled by its overall science theme, such as “Life Science,” “Earth and Space Science,” and “Physical Science.”
- A pacing guide, titled “Map Out Your Year Pacing Guide,” is provided in the “Dig into the Details” section of the product. The “Pacing Guide” identifies the time for each TEKS and unit in days and minutes for each part of the lesson.
- The TEKS section includes overarching concepts in grade 8, such as “Force and Motion in Systems,” “Climate and Weather,” and “Stability and Changes in Ecosystems.”

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

- Each lesson of the “Teacher Edition” provides “Extensions” and “Cross TEKS Resources.” In addition, for each unit, the product identifies the “Recurring Themes and Concepts” in the “Planning” section of each lesson in the “Standards Overview.” For example, in the “Teacher Edition,” the product integrates practice in “Patterns” and “Cause and Effect.”

- In the "Teacher Edition," "Science and Engineering Practices" for students are readily available in each lesson.
    - For example, in the "Properties of Water Unit's" "Hands-On Lab" "Penny Water Drop," students analyze data regarding how properties of water affect a penny being dropped.
    - For example, in the "Newton's Second Law of Motion Unit," students analyze force and motion data during the "Engage" portion.

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

- The "Scope and Sequence" promotes mastery and retention of the TEKS, critical thinking, and scientific reasoning by scaffolding and spiraling the TEKS, SEPs, and RTCs throughout the year.
    - For example, SEPs 2 and 3 for TEKS 1–4 are covered in the "Global Climates Unit" and again in the "Cells, Organisms, and Species Survival Unit."
    - The RTC TEKS 5A is covered in the "Physical Science Unit's" lesson on "Waves and Energy" and again in the "Earth and Space Science Unit's" lesson on "Global Climate."
- Mastery and retention are accomplished by providing many opportunities throughout the "Teacher Guidance" materials to practice science and engineering principles. The number of engineering practices contained within each lesson varies, but each lesson requires students to practice engineering principles.
    - For example, in the "Teacher Edition's" "Newton's Second Law of Motion Unit," students are directed to analyze data during the "Quick Lab" "Act the Graph." Later in the same unit's "Exploration 1" section, students apply what they have learned in the quick lab as they analyze data while studying "Velocity Graphs."

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Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials provided support consistency and organization of lesson planning and implementation. Examples of included materials are:
    - Lesson plans constructed using the “5E” model and similar activities for consistency.
    - The “Lesson at a Glance,” which gives a “Lesson Map” of the TEKS in each lesson, SEPs and RTCs, lesson objectives, and teacher background material.
    - Support for addressing misconceptions for each lesson.
    - Vocabulary overview for each lesson.
    - Access to online resources for each lesson (lesson plans, assessments, and enrichment activities) through technology links in the text labeled “Ed: Online.”
    - Specific content that addresses planning for differentiation as well as emergent bilingual support.
    - Color-coding for each lesson to make finding the content easier.

- The materials provide overview documents to support teachers in understanding how to use all materials and resources. For example, the "Set Up" section located in each lesson lists needed materials as well as teacher guidance for the "Pocket Labs."

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

- The "Student Edition" and "Teacher Edition" provide opportunities for cross-content standards with math and ELA.
  - In the "Force, Motion, and Energy Unit," graphs are incorporated to strengthen math concepts. Students also employ ELA skills as they write a letter or poem regarding Newton's laws.
  - "Exploration 2" pages in a unit covering "Genetics" display an activity where students model the genetic code using Greek Mythology.
  - In "Exploration 4" from the "Force, Motion, and Energy Unit," students use informative essay skills to answer questions about civil liberties in relation to the "Influence of Wave Technology on Modern Society."
- Below the title of each lesson, the standards are clearly presented. The standard correlations by each grade level are also provided in the "Teacher Guide's" "Lessons at a Glance" (within the "Planning" pages). ELPS are listed in the "Elaborate" pages.
  - A routine practice within each lesson unit is the "Teacher's Guide" making use of phenomena in varying places within the instructions. Lessons include student tasks to ask questions, solve problems, and move through the SEPs throughout the instructional sequence.

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

- Materials include a comprehensive list of all equipment and supplies needed to support instructional activities. Examples include:
  - A comprehensive alphabetical list of all the materials and supplies needed for each lesson related to the individual TEKS.
  - A hands-on materials list of equipment and supplies that the students need for the "Exploration" activities. Located in "Supporting Materials: Grade 8" is the comprehensive list for grade 8, where each supply is associated with the unit's TEKS. The "Student Edition" also presents a list of materials for the "Hands-On Labs," located in the "Exploration" section of the lesson. Some supplies included in the list are litmus paper, meter sticks, pulleys, baking soda, and beakers.
  - Each "Quick Lab" within the units includes a specific list of materials. In the "Quick Lab" "Breaking White Light," the materials list includes LED flashlight, white paper, and a prism.
  - Individualized materials lists are also provided for each group, along with easy-to-follow setup instructions for "Hands-On" and "Quick Labs."

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

- Each lab and exploration has its own individualized safety information. Detailed safety procedures have been provided in the beginning of the material, with precise information on handling of chemicals, PPE, and lab and field activity safety.
    - "Teacher Resources" provide "Lab Safety Support" and detail lab safety requirements for all labs and activities.
        - In "Exploration 4" of the unit covering the electromagnetic spectrum, the teacher is reminded to direct students to be careful of breakage and sharp objects.
        - In the "Hands-On Lab" "Build and Test a Rocket Parachute Part I," the teacher directs students to remember the safety procedures for handwashing, safety goggles, and sharp objects.
        - In the "Quick Lab" "Models of Matter," there are safety symbols with words. For example, there is a symbol for safety goggles with the words *safety goggles* next to the image.
    - The "Student Edition" contains reference material titled "Safety in the Laboratory and Field" so that students have clarification on expected safety practices.
    - Illustrated safety symbols are provided in both the "Student Edition" and "Teacher Edition" before each investigation, putting an extra emphasis on safety caution for that particular laboratory.
        - In the "Quick Lab" "pHast Relief," there is an abundance of safety precautions to be followed; all safety precautions are listed with the appropriate safety icons.

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Indicator 8.3

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

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

Meets | Score 2/2

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

Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities. Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a development 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.

- In “Dig into the Details,” there is a guide and recommendations for the entire year that outline each unit by days and minutes.
- The “Map Out Your Year Pacing Guide” provides comprehensive timing for the TEKS with a further breakdown of each individual TEKS.
- The “Pacing Guide” provides three different tracks based on the teacher’s preference. Forty-five minutes represents one day’s lesson.
    - Streamlined path (6300 minutes/140 days)
    - Emergent bilinguals path (7380 minutes/164 days)
    - Extended path (8010 minutes/178 days)
- The “Teacher Guide” includes recommendations for times for lessons as well as incorporated activities, investigations, and differentiation.
    - Unit 8.9A’s “Quick Lab” “What Color is the Sun?” should take 15 minutes.
    - The “Models of Matter Unit’s” “Lesson at a Glance” provides the following suggested breakdown: lab 15 minutes, summary 5 minutes, questions 10 minutes, reflection 15 minutes, and assessment 15 minutes.

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

- The “Teacher Edition” includes a Table of Contents that shows the TEKS are taught in sequential order to support progression of content and skills.
    - The lesson map for the “Stars Unit” gives seven days that move through the “5E” model.

    - The “Properties of Systems of Matter Unit’s” “Planning” section offers steps for differentiated learning to provide scaffolding. In the same section, there is sequential reteach to measure student progress for developmental learning.
- The “5E” model is consistently followed throughout the “Teacher” and “Student Edition.” The unit begins with the “Engage” (a hands-on lab), before moving to the “Exploration” and “Explanation” of the unit’s TEKS. “Extend/Elaborate” is used to clarify any remaining misconceptions before ending with “Evaluation.”
- Lessons in the “Teacher Edition” sometimes include a “Short on Time” or “Have Extra Time” suggestion for “Quick Labs” and “Hands-On Labs” in units.
    - Unit 8.9A’s “Quick Lab” “What Color is the Sun?” provides a “Short on Time” suggestion to eliminate steps 1-5.

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

- In the “Map out Your Year Pacing Guide,” located in “Dig into the Details,” unit lessons are built in 45-minute increments to allow for blocks of time for each lesson.
- The pacing is a suggestion, as teachers have access to editable lesson plans for each unit.
    - In the “Ed Online” section of each unit’s “Lesson at a Glance,” there is a link to the editable lesson plan.
    - Lessons also include suggestions for “Short on Time” or “Have Extra Time.”
    - The “Map Out Your Year Pacing Guide” provides comprehensive timing for the TEKS and further breaks down each individual TEKS. It also provides three different tracks based on the teacher’s preference.
        - Streamlined path (6300 minutes/140 days)
        - Emergent bilinguals path (7380 minutes/164 days)
        - Extended path (8010 minutes/178 days)
        - “Mix and Match” path to meet the needs of the individual classroom

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Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Materials consistently include an appropriate amount of white space and a design that supports student learning that is free from distractions. The margins/edges are consistent throughout the unit and are just the right amount of space for the page.
- Materials are consistent in the use of color, font type, and size. Materials use one main font for most of the text, while using color and other fonts to bring attention to key items that the student or teacher would need to pay special attention to within the text. Locations of important information, such as titles, subtitles, and notes, are created with their indicative colors, font types, and sizes. The design of the font is easily legible and is limited in font styles for simplicity and freedom from distraction. Visually highlighted tabs and bolded titles and subtitles are student-appropriate. The steps in the Quick Lab are bolded and stand out to the reader.
    - Titles for sections are in brown, action steps students need to do are in blue, gather data for the driving question is in a yellow box, and Exploration Hands-on labs are introduced in a large blue box. The blue, yellow, and white colors are complementary and draw the eye to important aspects of the material.
- The planning page for each lesson in the Teacher Edition follows a consistent pattern throughout each lesson. The TEKS are specified at the top of the page with the lesson map below it. There is a consistent use of the 5E model, which is color-coded to represent each E in 5E. The Engage title has a green background, the Explore title has blue, Elaborate has purple, and Evidence has yellow. The activity title for each section is color-coded based on where it would fit in the 5E model. If it's in the Engage section, the title is colored green.

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

- Materials consistently use age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, the Student Edition uses at most two pictures per page, if that. These images are clear, size appropriate for the page view, and highly relevant to the content. The pictures are accompanied by a short description of the image to help students connect the images with the content. There is no overuse of visuals that could cause distractions.
- In the Preview Lesson Vocabulary section, each image is surrounded by a box and includes a (half of the box size) colorful image to represent the vocabulary word along with a smaller text of the actual vocabulary word. For example, in the "Global Climate" unit, the pictures are relevant and engaging. A picture of Plesiosaurs on a beach and a colorful picture of sidewalk chalk will engage the students in the "Can You Explain It?" section. On the very next page, students see a beautiful microscopic view of chalk showing the fossil shells of marine organisms. The pictures are in focus, have excellent color contrast, and the text associated with the picture is consistently off to the side. These pictures are relevant to the driving question, "How could carbon from a prehistoric marine reptile end up in a piece of chalk today?" The teacher can use the pictures to engage students in a discussion of how these relate to one another.
- Materials make use of the same or similar pictures throughout units to reinforce learning and be consistent. In the "Global Climate" unit, the materials use a picture representing the carbon cycle several times throughout the unit. The materials introduce the Hands-on Lab for Exploration 3 with this picture showing how carbon cycles between reservoirs. Students make use of this diagram again and have to brainstorm a list of reservoirs in the carbon cycle. Another use of this picture is found in the Lesson Summary and again in the Practice Questions section.

Materials include digital components that are free of technical errors.

- Materials provide digital components that are free from error. As you move through the digital Interactive Student Lessons, the materials are free of technical errors such as spelling, grammar, and punctuation. The materials also represent accurate content and information.
- Materials are also free from inaccurate content materials or information and free from wrong answer sheets to problems. For example, student activity guides are free of inaccurate content materials or information and free of wrong answer sheets to problems. When viewing the Assessment Guide Answer Keys for summatives, the answer key identifies the correct answer choices and provides accurate and relevant rationale for why the other answer choices would be incorrect.
- The student digital materials and Quick Lab videos are free of technical errors and provide accurate information.
- Materials are error-free in the Student Interactive lessons tab. The digital interactive lessons are textually and visually error-free, and the audio works properly along with text words for read-aloud support.

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Indicator 9.2

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Materials consistently integrate digital technology and tools that support student learning and engagement.
- In the "Forces and Motion in Systems" unit, Student Edition, students engage with the Test Your Science Words section by using a drop-down menu to select the correct vocabulary word.
- Interactive digital lessons include questions where students are able to type their own answers. In the "Forces" unit, students watch a video regarding how forces act upon objects and before typing their observations.
- Students' digital components include embedded tools such as text-to-speech, bookmark, note-taking, and read-along highlight. The notes are in the right-hand margin, and students have the option to edit, delete, and/or print their notes, providing ample opportunities for engagement.
- Students can use interactive vocabulary cards to develop and practice new vocabulary words. This interactive tool can be accessed in the Science Words section in each grade level.
- The "Properties of Waves" unit's digital component includes a short, engaging video clip that allows students to observe how a rattlesnake strikes. Students can watch this clip as many times as they need to make observations. The materials also provide an engaging picture of a Western Diamondback rattlesnake. On the same digital page, students record their observations by typing in the box the materials provide. Not only does this engage students more, but it also supports students with dysgraphia.

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

- Materials consistently integrate digital technology in ways that support student engagement with the SEPs, RTCs, and grade-level content. Lessons consistently include scientific investigations where students use SEPs. Students interact digitally with the materials during this process, such as watching a video about the investigation and answering questions in order to evaluate and communicate information, all of which integrate RTCs.
    - For example, in the unit "Waves and Energy" lesson, the students are exploring the science theme of energy and matter.
- In the Engage section of "Properties of Water," students plan an investigation to compare water's behavior on three different materials. Students record their plan and procedure, propose a hypothesis, and conduct the experiment. Students record their observations and explain if their hypothesis was correct or not
- The simulations found on the Discover page of the product website allow students to conduct investigations using SEPs and observe/engage with RTCs.
- Materials also include SEPs in each Interactive Digital Lesson that coincide with the print edition. For example, in the unit "Waves and Energy," Lesson "Properties of Waves" in Exploration 1, the students will plan and conduct investigations and develop and use models as part of the "Exploring Transverse Waves" investigation.

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

- Materials include a digital platform, HMH Ed, which supports digital teacher-student collaboration. Materials also include teacher-teacher collaboration through sharing customized lesson plans and assessments through the My Stuff feature of the HMH digital platform. Teacher's Corner can be used as a forum for teachers to collaborate with other teachers and join the Materials Teacher's Corner Facebook community.
- Materials provide PocketLab notebook functionality and digital and student collaboration. PocketLab Notebook allows for digital student-student collaboration and digital teacher-student collaboration during Hands-on Labs, as well as for teachers to monitor student progress, review responses, and give feedback.
    - In the Engage section of the "Models of Matter" lesson, students read an article about desalination and watch a video about the desalination process. Materials prompt students to observe and work with a small group to record their observations, but observations cannot be shared online with their peers.
- Materials do provide an option for teachers to leave general feedback on tests and quizzes with one overall comment.

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

- Materials are compatible with various learning management systems such as Google Classroom, Canvas, Schoology, etc. Materials provide guidance as to how to set up the integration of the materials to a given LMS. This information can be found in the Teacher's Corner on Ed Program Support. The digital guide to get started teaching with Ed online and an LMS provides step-by-step instructions, video tutorials, and tips from instructional coaches and other teachers.

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- Materials are accessible through a variety of web browsers. They are compatible with various devices, including mobile devices, as long as there is internet connection and a web browser. The digital materials are accessible on Windows 11, iPad, and iPhone as well as Chrome, Chrome iOS, and Safari.

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Indicator 9.3

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- Digital technology/online components within the materials are developmentally appropriate for the grade level and align with the scope and approach to skills progression.
- The Interactive Student Lessons are broken down by each day's content with a "Stop" sign to show the end of the lesson. This reflects the developmental abilities of the grade level, with the design keeping in mind how much content the student can cover in one lesson. The "Global Climate" unit's Lesson at a Glance planning page suggests the Engage portion of the lesson take one day (45 minutes).
- In the "Forces and Motion in Systems" unit, the EdOnline Reteaching Support TEKS for the grade level are provided along with ScienceSaurus lesson numbers that align with grade level TEKS to support student learning and engagement with digital tools.
- Materials identify skill bank items, quizzes, assessments, explorations, review/practice questions, and performance tasks by TEKS. The material links the resources with their point of use within the lesson. Reteaching support is built in by TEKS, and these supports can be found in the digital Answer Key on Ed. Materials also progress through the TEKS as they are outlined in the scope and sequence. The scope and sequence is accessible through the Teacher's Edition or through the Dig into the Details: Scope and Sequence.

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

- Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.
- In the Lesson at a Glance page at the beginning of each unit, Ed Online specifies that the links for specific resources will be at their point of need. In the Teacher's Corner, teachers will find many digital resources that provide step-by-step instructions, video tutorials, and professional development videos by other teachers that provide ongoing support for the teacher. A teacher can access a "Master Class: Best Practices for Developing Evidence" in the Teacher's Corner. This class supports teachers in teaching students how to support a claim by using the evidence they gathered to be able to argue scientifically.
- Materials provide a Digital Walkthrough guide with step-by-step instructions for setting up and using the technology, along with tips for troubleshooting. This guide provides detailed information with screenshots for setting up classes, creating student groups, viewing resources, assigning content, customizing assessments, using data to inform instructions, standards reports, assignments and scores, access to professional learning, and more.
- Materials use best practices for using embedded technology for differentiating instruction using technology to promote collaboration and incorporating multimedia resources into lessons. Ed Online support provides Editable lesson plans as well as reteaching supports, extensions, and cross-TEKS resources. In the Teacher's Corner, a variety of resources are offered, including classroom videos, teacher tips, and program support.

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

- Materials are available to parents/caregivers to support student engagement with digital and online components.
- In the Family Room, parents and caregivers will find program support, tips on how to navigate Ed, and Shareables for challenges to student learning.
- Under the Discover tab in HMH Resources, each TEKS has an Introductory Resource which contains Home Letters that can be sent home, which contains the Science Summary of that particular TEKS being taught, At-Home Activity, and Online Resources. These letters are editable, and the teacher can provide links to important digital resources.
- A Beginning-of-Year Home Letter provides information about what topics the students will be exploring and how the lesson is structured by incorporating scientific phenomena and engineering problems.