EduSmart Science Biology

EduSmart Science Biology Executive Summary

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

TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
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.

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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 and course-level content as outlined in the TEKS.

1	Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of appropriate scientific and engineering practices as outlined in the TEKS.	M
2	Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level or course as outlined in the TEKS.	M
3	Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions, plan and conduct classroom, laboratory, and field investigations, and to engage in problem-solving to 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 and course-level content as outlined in the TEKS.

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of appropriate scientific and engineering practices as outlined in the TEKS. Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level or course as outlined in the TEKS. Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions, plan and conduct classroom, laboratory, and field investigations, and to engage in problem-solving to 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 appropriate scientific and engineering practices as outlined in the TEKS.

- "Hands-on Activities" are a way the material provides multiple opportunities for students to practice, develop, and demonstrate mastery of the scientific and engineering practices (SEPs). In the Hands-on Activity found in B.13(C), "Nutrient Cycling and the Environment," students must plan and implement an experimental investigation concerning the optimum time period to apply nitrogen-containing fertilizers to help prevent an overabundance of nutrients, like nitrogen and phosphorus of water ecosystems. Students must formulate and propose a hypothesis and design all of the steps of the experiment, including determining materials, lab safety, and ways to collect, examine and record data to bring them to a valid conclusion. This hands-on activity supports TEKS B.1(A), B.1(E), B.1(G), B.2(D), B.3(B), and B.4(A).
- The materials offer students two opportunities to develop, practice, and demonstrate mastery of appropriate SEPs as outlined in the TEKS through the "Engineering Design Challenge." The Engineering Design Challenge provides opportunities for students to work as a team and design solutions to real-world problems. In the Engineering Design Challenge for B.12(A)(B), "Injury Recovery and Illness Monitoring with eBandage Technology," students research and analyze current products and create ways to improve them. They then present to their classmates and

support their work with the evidence they found. Next, they engage in discussions to review their work and collaborate with others to determine if they met the criteria successfully. This Engineering Design Challenge specifically correlates to the SEPs for TEKS B.1(A), B.1(G), B.2(D), B.3(A), B.3(B), B.3(C), and B.4(A). Materials within the platform offer a variety of opportunities and approaches to practice, use, and master SEPs. In Section B.9(A), Evidence of Common Ancestry, students use a journal prompt to develop and practice data analysis to determine which two of three species are more closely related. In Section B.12(A)(B), Structural Hierarchy and Biological Systems, students work as a team on an Engineering Design Challenge to create a prototype of an eBandage that monitors and rapidly heals an injury. The material provides a unit for SEPs with four activities. The activities demonstrate mastery of appropriate SEPs by incorporating STEM activities, research questions, and STEM career connections.

- In the materials, the "Instructional Module Companion" provides opportunities for students to make connections to scientific and engineering practices (SEPs). For example, the Instructional Module Companion for B.9B, Fossils and Evolution, includes a graphic organizer exercise where students compare and relate ancient organisms to modern-day organisms by citing their similarities. The students are prompted to consider why a horseshoe crab has changed so little over time. This journal prompt supports the SEPs in TEKS B.3A: "Develop explanations and propose solutions supported by data and models and consistent scientific ideas and principles." In the materials, "Hands-on Activities," provide opportunities for students to practice, develop and demonstrate mastery of the SEPs. Students plan and implement descriptive, comparative, or experimental investigations to design solutions to real-world problems. In the Hands-on Activity for B.13(A), "Attack of the Killer Plants," students conduct an experimental investigation concerning the factors that affect the distribution of plants, specifically allelopathy. Students formulate a hypothesis, conduct the experiment, adhere to lab safety, and observe and record data to reach a valid conclusion. This hands-on activity supports TEKS B.1A, B.1E, B.1G, Within the Scope and Sequence, TEKS for SEPs accompany the breakdown and sequence of the Biology Concepts TEKS.

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

- All grade levels have a grade-specific Scope and Sequence. Within this Scope and Sequence, reporting categories are broken down into TEKS-specific units. The core-content TEKS that are addressed in the unit are listed as well.
- In the materials, the "Interactivity" resource in each unit allows students to develop their content knowledge systematically and strategically by practicing their understanding of the content. In Interactivity, students use the knowledge they have gained through previous instructional modules, student activities, readers, simulations, and hands-on activities to check their understanding of that unit's standard. For example, in B.7(B), "Transcription and Translation," students practice sequencing to learn how information stored in a gene is used to synthesize a protein.
- In the materials, a "Reader" is available for each unit, offering students an opportunity to develop a deeper understanding of the content. After a student reads the passage, they are asked five questions ranging in depth of knowledge to check for understanding and make connections to real life. For example, in B.7(A), "Did Life Come from Outer Space?," students read an overview of research on molecules found in asteroids that lead to the possibility that building blocks of DNA come to Earth from space. This covers TEKS B.7(A) and B.4(B).

- Student materials show evidence of systematic development of content knowledge and skills that are grade- and concept-appropriate. For example, in Section B.7(D), Applied Genetics, the concept of genome editing is introduced in an Anchoring Phenomenon video that illustrates an enzyme extracting a section of DNA. The concept is then explored in an Interactivity simulation where extracted DNA samples lead to the identification of a criminal. Content knowledge and skills are further developed in an Engineering Design Challenge centered on gene editing technology.
- The materials strategically and systematically develop students' content knowledge from a micro to macro level appropriate for high school Biology courses.

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

- The materials open each unit with an Anchoring Phenomena Activity. Through the Anchoring Phenomena Activity, students are prompted to come up with their own questions related to a phenomenon that is presented to them. For example, in the Anchoring Phenomenon for Unit B.13(A), "Worms and Ecosystems," students are presented with a video of a group of parasitic worms. Students come up with their own questions related to this specific phenomenon. Another example is shown in the Anchoring Phenomenon for B.12 (A)(B), "Sweat," where students are presented with a video of a man bent over and sweating profusely. Students, alone or in groups, come up with their own questions related to this specific phenomenon. Teacher prompts are also provided to help students scaffold their thinking and questioning.
- EduSmart materials provide hands-on activities that allow students to explore science concepts in an engaging and interactive way. For example, the Hands-on Activity for Unit B.5(C), "Cellular Processes: Homeostasis," asks students to use their knowledge of osmosis and homeostasis. The materials provided by the teacher allow students to investigate how osmosis helps a cell maintain homeostasis internally despite changing external conditions. This comparative investigation reminds students that their investigation should include a well-defined problem, a testable hypothesis, and a procedure for collecting both quantitative and qualitative data.
- The activities allow students to explore science concepts in an engaging and interactive way by manipulating variables and observing the effects on scientific phenomena to solve problems, all while making connections to understand scientific concepts. For example, in B.5(C), "Cellular Processes: Homeostasis," students use their knowledge of osmosis and homeostasis and the materials provided by the teacher to investigate how osmosis helps a cell maintain homeostasis internally despite changing external conditions. Students are required to include a well-defined problem, a testable hypothesis, and a procedure for collecting both quantitative and qualitative data, and finally analyze the data to draw a valid conclusion.
- There is evidence that materials provide opportunities for students to develop an understanding of science concepts through asking questions and designing investigations. In B.5(C), "Cellular Processes," students investigate cellular homeostasis in a hands-on lab activity exploring osmosis. Further inquiry into cellular homeostasis is supported with a second hands-on investigation focused on diffusion.
- The development of questions to guide investigations is represented in B.10(B), "Factors Leading to Natural Selection." The Anchoring Phenomenon is a video of two giraffes fighting. Students observe the behavior and ask questions that help explain the behavior. In the next activity, the simulation is an investigation into how genetic traits in populations are established. To continue support of further questioning and deeper understanding, the next activity, "Natural Selection

of Goldfish," is a hands-on investigation using mathematical modeling to better understand how allele frequencies are developed in the gene pool of a population.

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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 and course-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 and 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 and course-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 and course-level content as outlined in the TEKS.

- The materials open each unit with an "Anchoring Phenomena" activity. Through the activities, the students are prompted to come up with their own questions related to a phenomenon that is presented to them. For example, in the Anchoring Phenomenon for Unit B.13(A), "Worms and Ecosystems," students are presented with a video of a group of parasitic worms. Students come up with their own questions related to this specific phenomenon. Teacher prompts are also provided to help students scaffold their thinking and questioning. This activity supports TEKS B.11(B): "Investigate and explain the role of enzymes in facilitating cellular processes."
- EduSmart materials provide problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices (SEPs) and course-level content as outlined in the TEKS. For example, the Hands-On Activity for Unit B.5(C), "Cellular Processes: Homeostasis," asks students to use their knowledge of osmosis and homeostasis and the materials provided by the teacher to investigate how osmosis helps a cell maintain homeostasis internally despite changing external conditions. This comparative investigation reminds students that their investigation should

include a well-defined problem, a testable hypothesis, and a procedure for collecting both quantitative and qualitative data. This hands-on activity supports the grade-level content TEKS B.5(C). Additionally, this hands-on activity supports SEPs for TEKS B.1(A), B.1(C), B.1(D), and B.2(C).

- In the materials, the "Instructional Module Companion" available for each category standards aligns with the "Instructional Module" to guide students through the rooted phenomena within the module. Instructional materials offer students opportunities to build and develop knowledge through authentic applications. Students are provided with activities to scaffold the video-formatted concepts in the module, including a note taking guide, a graphic organizer, and a journal prompt. The components of the Instructional Module Companion helps students understand grade level content that is rooted in phenomena, allows students to problem solve through the SEPs, and develops students' authentic application in relation to embedded phenomena. SEPs such as developing questions, collecting and analyzing data, making connections to real-world phenomena, and using tools properly are supported. For example, in B.12(A)(B), "Structural Hierarchy in Biological Systems," "following note taking, completing a table, and observing a diagram," a journal prompt asks the student to identify what happens when a plant responds to light. This journal prompt also supports the SEPs for TEKS B.3A.

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

- The materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems by providing a "Vertical Alignment" document which gives a side-by-side comparison on core concept TEKS and comparisons of grade level expectations for the SEPs. The materials also include Instructional Modules. For example, students use the knowledge they learned in Unit 5(B), "Comparing Prokaryotic and Eukaryotic Cells," and Unit 5(C), "Viruses," during the Instructional Module of Unit B.7(A), "Molecules of Heredity," and B.7(B). "Protein Synthesis." The materials intentionally leverage students' prior knowledge with open-response journal prompts to access prior knowledge from previous lessons, specifically asking students to make connections with previously taught content.
- The "Vertical Alignment" document found in "Teacher Resources" provides a side-by-side comparison on core-concept TEKS as well as comparisons of grade-level expectations for the SEPs. For example, in the Instructional Module for grade 8 TEKS 8.13(B), students learn that heredity is the passing on of traits from parents to offspring. They also recognize the phenomena that genes located in the nucleus of cells are the structures responsible for the specific traits organisms inherit. This prior knowledge and experience prepares students for the Instructional Module for B.7(A), which sets up students to describe the structure of a DNA molecule as well as identify the components of a DNA nucleotide, compare and contrast the structure of an RNA molecule with that of a DNA molecule, and learn about the different experiments that established the phenomena of DNA as the molecule of heredity.
- In the materials, an Instructional Module is provided for each category TEKS standard, which builds upon students' prior knowledge and experiences related to phenomena and engineering problems. For example, in grade 8 TEKS 8.13(A) students identify the function of the cell parts in cells. In the Instructional Module for 8.13(A), students learn that plant and animal cells are both eukaryotic cells. They also compare and contrast the structures in animal and plant cells. This prior knowledge is the foundation for TEKS B.5(B), "compare and contrast prokaryotic and eukaryotic cells, including their complexity, and compare and contrast scientific explanations for

cellular complexity." The Instructional Module for B.5(B), journal prompt "Comparing Prokaryotic and Eukaryotic Cells," asks students to identify the procedure that would allow them to sort a series of images quickly and accurately as either prokaryotic cells or eukaryotic cells.

- There is evidence of materials leveraging students' prior knowledge for the function of cell components of both animal and plant cells in B.5(C), "Cellular Processes." The Vertical Alignment document cites TEKS 8.13(A), where students compare plant and animal cells, learn the function of cellular components, and compare eukaryotic and prokaryotic cells.
- Concepts within the instructional materials in section B.13(B), "Energy Flow in The Living World," includes analyzing the effects of disruptions on the stability of an ecosystem within the parameters of the flow of energy and matter through trophic levels. The foundation for prior knowledge is laid in TEKS 8.12(A) concerning different types of disruptions to ecosystems, including the effects of humans and natural disasters.

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

- The hands-on activity for Unit B.7(A), "Research Activity: Origin of DNA," clearly outlines the core concept standard that is addressed through this activity. The standard is to identify components of DNA, explain how the nucleotide sequence specifies some traits of an organism, and examine scientific explanations for the origin of DNA. The objective as well as the directions are also outlined for the teacher to guide them through the goals of student mastery. A rubric is also included in these teacher documents to outline the level of student mastery of the specific core concept.
- The Anchoring Phenomena are present for each of the core standards. EduSmart's "Anchoring Phenomena Teacher Key" clearly outlines for the teacher the scientific concepts and goals behind each phenomenon. For example, in the Anchoring Phenomenon for Unit B.13(A), "Worms and Ecosystems," the teacher key for Anchoring Phenomena also provides guidance on how to scaffold student learning and help them to make connections between the phenomenon and the scientific concepts they are learning. Another example is found in the Teacher Version of "Why Do Some People Have Trouble Digesting Milk?" A clear description of the phenomena and the scientific concept is listed in TEKS B.11(B), "identify and explain the role of enzymes in facilitating cellular processes." This includes prompts for student reflection, discussion questions, and suggested activities that encourage students to apply their learning to new situations and contexts.
- The materials clearly outline the scientific concepts and goals behind each phenomenon and engineering problem with specific time constraints and directives for what the student and teacher should be doing. In the materials, a "Teacher's Resource Guide" is found in each category TEKS standard, which provides for planning and implementation. Each guide includes a breakdown of the TEKS in the unit, background knowledge for the teacher to understand the content being taught, prerequisite knowledge for the student, common misconceptions for students, and essential questions that students should be able to respond to demonstrate mastery of the content.
- In each chapter section, there is a "Unit Teacher Guide" that grounds the teacher in content, connotes possible prior knowledge, and denotes misconceptions. In addition, essential questions and answers are provided to further ground and guide the teacher.
- The Engineering Design Challenge in B.7(D) Applied Genetics, titled "The Good, The Bad, and The Ugly of Genome Editing Technologies," offers guidance for teachers within the document. For example, each component is clearly explained. The "Introduction" sets the stage for the

challenge and infers teacher guidance for the process. The “Performance Task” section lists “Goal, Role, Audience, Situation, Product, and Success Criteria,” providing a clear message of task components. Teachers can drive students’ thinking deeper with the probing questions supplied for the “Design Analysis” section. The “Assessment Rubric” is utilized within the challenge and can also be used with other projects of this type.

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Indicator 3.1

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

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

Evidence includes but is not limited to:

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

- In the materials, a “Scope and Sequence” document found in “Teacher Resources” is available for each category standard. The document provides a suggested progression of units and TEKS for teachers to build student knowledge utilizing available resources so that students are able to build and apply their previous knowledge and science and engineering skills as they advance across the units.
- In the “Vertical Alignment” document found in “Teachers Resources,” a table shows what the students should be learning in the previous grades to connect their knowledge and reinforce learning in high school. For example, in grades 6-8, students plan and conduct investigations to develop and communicate explanations. In high school, students use their previous science knowledge and science and engineering skills to analyze, evaluate, and critique scientific explanations and solutions by using empirical evidence, logical reasoning, and experimental and observational testing so as to encourage critical thinking by the student. This supports TEKS 6.3A-C, 7.3A-C, 8.3A-C, B.3A-C, B4.A progressively.
- In Unit B.9(A) Evidence of Common Ancestry, the “Instructional Module” cites introductory information centered on commonalities among all living organisms. A foundation for student connections to this concept of commonalities is found in prior lessons. For example, earlier content, such as the six common elements, biomolecules, structure and functions of cells, and similarities in DNA, lays the foundation for understanding the concepts of common ancestry. As

a student continues within the "Instructional Module," new concepts such as ancestry mapping using cladograms are introduced and explained. The lesson materials continue to support building knowledge and skills as students explore additional concepts of comparative anatomy using the fossil record, embryology, geography, and molecular biology.

- The "Instructional Module" in Unit B.9(A) is in direct support of the content and concepts in Unit B.9(B), Fossils and Evolution. The teacher notes and questions for "Anchoring Phenomenon" connect to the prior lesson with a focus on developing a deeper understanding of the fossil record. The "Instruction Module" in B.9B helps students connect prior knowledge of the fossil record and also build additional knowledge about how the fossil record supports the theory of evolution.

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

- In the materials, the "Instruction" section scaffolds learning, allowing for increasingly deeper conceptual understanding. The section starts with presenting "Anchoring Phenomena" to engage students' curiosity. The "Instructional Module," available for all grade level TEKS, presents visuals and direct content for students to develop an understanding of the concepts. "Instructional Module Companion" provides notes, graphic organizers, and journal prompts that serve as checkpoints and opportunities for students to demonstrate mastery. For example, in the "Instruction" section for B.9A, Evidence of Common Ancestry, students view a video clip of the movement of continents over time to engage curiosity and apply prior knowledge. In the "Instruction Module," students learn that evolutionary theory can be used to explain the relationships between organisms. They analyze and evaluate anatomical, biogeographical, embryological, and molecular evidence for common ancestry.
- In the "Vocabulary and Literacy" section for each category standard of the materials, "WordExplorer" provides learning opportunities that allow students to increase their understanding of content through a 3-part activity that leads the students from visual to fact-based statements. The students engage in visual literacy, where they select images that best represent the word. "WordExplorer" then requires students to read facts (or use the text-to-speech accommodation) about the specific vocabulary term and choose correct statements. Finally, "WordExplorer" increases the difficulty by posing a fill-in-the-blank style statement where students select appropriate words to complete a statement that represents the correct application of the terminology.
- The materials are intentionally sequenced to scaffold learning. In the B.5 (A) Biomolecules "Teacher Implementation Guide," the materials provide the teacher with intentionally sequenced and scaffolded learning by referencing students' prior knowledge, teaching the teacher the background knowledge, and addressing misconceptions that the teacher may encounter in order to teach the students a deeper conceptual understanding. The platform uses a 5E lesson format for student-facing materials. For example, in Unit B.7(A) Molecules of Heredity – DNA, the "Anchoring Phenomena" in the "Engage" portion is a video of a spiraling DNA molecule. The teacher materials provide questions for the students to answer as they observe. The "Explore" section includes activities where students learn about the structure of a DNA molecule, create a timeline of scientists that contributed to DNA research, examine scientific explanations of the origins of DNA, and perform an investigation that compares DNA sequences of various organisms. The "Explain" provides an activity to explain DNA and RNA structure and function and a note-taking guide for students. The note-taking guide provides a word bank, a digital graphic organizer to label DNA structures, and a journal prompt. The

"Elaborate" section provides a "WordExplorer" activity where students can review terms, two different journal prompts that students can use as a checkpoint for understanding, and a "Reader" that includes questions at the end of the passage for students to check their understanding.

- A "WordExplorer" is an interactive component in every lesson's "Elaborate" section. The "WordExplorer" supports the scaffolding of concept understanding by utilizing the power of vocabulary as applied through different tasks. For example, in B.6(A) Cell Cycle, the terms are displayed on digital flashcards with the vocabulary word and an image. A student chooses a card and then is prompted to select one or more cards that represent the term. The next task is to select each fact that is true for the term. The third task is to drag and drop words to complete a summary sentence. Once all the tasks are completed successfully, the card flips over to reveal the definition.
- In the B.5 (A) Biomolecules "Student Activities," the materials provide students with opportunities to build deeper conceptual knowledge with the interactive and with journal prompts to reflect, think, and write about applications and real-world scenarios on how biomolecules interact with the human body, in particular, their own human body.

Materials clearly and accurately present course-specific core concepts and science and engineering practices.

- The materials include a 5E (Engage, Explore, Explain, Elaborate, Evaluate) model section for sequencing science instruction for each category standard and unit. During the "Engage" phase, the "Anchoring Phenomena" activities capture students' interest, and teachers ask open-ended questions to activate learning and help gauge students' prior knowledge of the concept. During the "Explore" phase, students conduct "Simulations, Interactivity, and Hands-on Activities" to explore and gather data. During the "Explain" phase, the "Instructional Modules and Companion" present the appropriate content and concepts, terms, ideas, and representations to increase student understanding. In the "Elaborate" phase, students connect the previous three phases to test their new knowledge in different settings. Materials provide "WordExplorer, Journal and Reader" activities that help students build on their knowledge to establish a deeper and broader understanding. During the "Evaluate" phase, an "Edusmart Quiz" provides an opportunity for students to reflect on their new conceptions of science and for teachers to evaluate for mastery.
- Throughout the category standards, the "Teachers Resources, Instruction materials, Activities, and Assessments" accurately represent course-level core concepts and science and engineering practices (SEPs). For example, in category standards B.7-8, the Study Mechanisms of Genetics, and B.9 and B.10, Evolutionary Mechanisms, students study the significance of genetic mutations, natural selection, and genetic drift in living organisms. Materials provide concise instruction in gene expression, genetic variation, and gene flow in populations. Students learn that models can be used to represent the processes. Materials present an Activity: Analyzing and Evaluating the Effects of Genetic Drift in beetles on two islands that allow students to explore further and connect their knowledge.
- Materials clearly and accurately present core concepts and science and engineering practices as evidenced by a hands-on lab investigation in Unit B.5(C) Cellular Processes: Homeostasis. Maintaining homeostasis is a vital function for all cells. Osmosis is the primary means by which cells maintain an equilibrium in challenging environments. The initial investigation addresses the outcome of the effects of two different solutions on carrot cells. A second investigation in the same unit explores how cell size affects the efficiency of cell membranes to maintain

homeostasis. A third investigation concerns the effect certain stressors may have on cell membranes. The investigation documents prompt students to use what they have learned to create a hypothesis, follow pertinent safety procedures, use appropriate equipment and materials, make observations, collect and analyze data, and draw conclusions.

- Course-specific core concepts are found in the "Instruction Module" of every unit. For example, in B.6(C) Disruptions in The Cell Cycle, the "Instruction Module" is an interactive lesson that explains the importance of the cell cycle, the stages of the cell cycle, how the cycle is controlled, and what occurs when the cycle is disrupted. The "IM Companion" is a note-taking guide for students to use while learning concepts presented in the "Instruction Module." The guide includes a word bank for fill-in-the-blank sentences. A graphic organizer supports the overall understanding of the primary concepts when students drag the appropriate terms into the correct boxes.
- Within the course materials is a learning topic that clearly and accurately presents course-specific core concepts and science and engineering practices with a unit devoted to this topic. Within the unit are activities that connect the students with real-world scenarios, STEM, and science and engineering careers to learn. The materials also contain phenomena for each unit that connect real-world situations and scientific engineering practices for students to learn.

Mastery requirements of the materials are within the boundaries of the main concepts of the course.

- In the materials, EduSmart "Quizzes" found in assessments are available for every core category standard. The quizzes assess student mastery of the core concepts within the Biology course through multiple-choice questions. The materials contain unit quizzes that test prior knowledge to build on current unit knowledge and can be taken multiple times to build the student to mastery. Students are provided with immediate results and feedback as to why the answer is correct. The quizzes also display the specific TEKS the questions are assessing. For example, the quiz for TEKS B.10(D) assesses a student's mastery of Evolutionary Mechanisms. By having the TEKS displayed within the assessment ensures that student mastery is being assessed within the boundaries of their appropriate grade-level concepts.
- The "Vertical Alignment" document found in "Teachers Resources" of the materials indicates that in grade 8, TEKS provides a foundation for Biology. TEKS: 8.3A Develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories, 8.3B Communicate explanations and solutions individually and collaboratively in a variety of settings and formats and, 8.13B Describe the function of genes within chromosomes in determining inherited traits of offspring are covered in grade 8. These TEKS provide background knowledge and skills needed for Biology B.7A: Identify components of DNA, explain how the nucleotide sequence specifies some traits of an organism, and examine scientific explanations for the origin of DNA and B.8B Predict possible outcomes of various genetic combinations using monohybrid and dihybrid crosses, including non-Mendelian traits of incomplete dominance, codominance, sex-linked traits, and multiple alleles.
- Mastery requirements are outlined and described in the "Teacher's Guide" associated with every unit within the platform. For example, in Unit B.5(A) Biomolecules, the "Teacher's Guide" cites TEKS B.5(A) knowledge and skills requirements at the top of the document. There is a section on "Background Information" that is content specific to the concepts stated in the TEKS. There are "Essential Questions" with answers included that help focus instruction on the skills statement of the TEKS.
- Materials include mastery requirements within the boundaries of course concepts. Every quiz within the platform is grounded in content standards. For instance, in B.10(D) Evolutionary

Mechanics, the content standard is posted for each question. The teacher can administer the quiz digitally or use a paper copy to determine student mastery.

- The materials encourage mastery within the boundaries of the main concepts for each unit of the course. Each unit includes vocabulary strategies for students to build their vocabulary to comprehend the main core concepts.

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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 vertical alignment of course-appropriate prior knowledge and skills guiding the development of course-level content and scientific and engineering practices.	M
2	Materials contain explanations and examples of science concepts, including course-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 vertical alignment of course-appropriate prior knowledge and skills guiding the development of course-level content and scientific and engineering practices. Materials contain explanations and examples of science concepts, including course-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 vertical alignment of course-appropriate prior knowledge and skills guiding the development of course-level content and scientific and engineering practices.

- In the materials, a "Scope and Sequence" document found in "Teachers Resources" is available for each category standard. The document provides a suggested progression of units and TEKS for teachers to build student knowledge utilizing available resources listed and key vocabulary terms so that students are able to build and apply their previous knowledge and science and engineering skills as they advance across the units. For example, for B.5B Comparing Prokaryotic and Eukaryotic Cells, the scope and sequence lists prior knowledge terms such as autotroph, binary fission, nucleus, and chloroplast that students are expected to have learned in previous grades or material. The scope and sequence also lists new more complex vocabulary terms students are expected to learn, such as anaerobic respiration, endosymbiotic theory, and multicellular organisms.
- The "Vertical Alignment" document found in "Teachers Resources" of the materials indicates that in grade 8 TEKS provide a foundation for Biology. TEKS: 8.3A Develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories, 8.3B Communicate explanations and solutions individually and collaboratively in a variety of settings and formats and, 8.13B Describe the function of genes within chromosomes in determining inherited traits of offspring are covered in grade 8. These TEKS provide

background knowledge and skills needed for high school Biology B.7A: Identify components of DNA, explain how the nucleotide sequence specifies some traits of an organism, and examine scientific explanations for the origin of DNA and B.8B Predict possible outcomes of various genetic combinations using monohybrid and dihybrid crosses, including non-Mendelian traits of incomplete dominance, codominance, sex-linked traits, and multiple alleles.

- There is ready access to a vertical alignment document in “Teacher Resources” in every unit section within the platform. For example, Unit B.6 Biological Structures, Functions, and Processes is divided into three sections; B.6(A) Cell Cycle, B.6(B) Cell Differentiation, and B.6(C) Disruptions In The Cell Cycle. The materials support teachers by providing a vertical alignment guide for all grade levels leading up to Biology and explain the prior knowledge course-appropriate skills that students should carry with them from grade level to grade level (sixth through eighth grades)with a focus on scientific and engineering practices (SEPs).
- “Teacher Resources” provides a “Unit Teacher Guide” with each unit section. Within the “Teacher Guide” document are components that support teachers as they develop course level content. One of the components in the documents is “Prerequisite Knowledge.” For instance, in B.6(A) The Cell Cycle, the “Prerequisite Knowledge” section provides vertical alignment connections to cells in 6th grade and cell splitting in 7th grade. Additional prior knowledge cited within earlier biology coursework connects function of biomolecules and cell structures to the concepts of the cell cycle.
- The materials support teachers by providing each unit an implementation guide on how and what to do with students to access their prior knowledge and to promote SEP skills. The guide also provides science investigation strategies for students to conduct along with lesson templates for teachers to utilize with no prep.

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

- In the materials, the “Unit Teacher Guide,” found in the “Teacher Resources” section indicates the TEKS to be covered in that unit. The guide contains explanations and examples of scientific concepts. For example, B.6C: Disruptions in the Cell Cycle, provides the necessary background information to support the teacher's subject knowledge. Through this background information teachers can strengthen their understanding about cancer and the common sources and causes of disruption to the normal cell cycle.
- In the materials, the “Unit Teacher Guide,” found in the “Teacher Resources” section, provides information about the common grade level-misconceptions to support teacher's subject knowledge and recognition of barriers to student conceptual development. For example, in B.5B: Prokaryotic and Eukaryotic Cells, the material provided in “Common Misconceptions” of the guide, students may think the two types of cells are plant cells and animal cells. Teachers are guided to remind students that all living things are made of cells. Students may also think that all unicellular organisms are prokaryotic, and all multicellular organisms are eukaryotic. Teachers are prompted to guide these misconceptions to the understanding that protists are unicellular and eukaryotic.
- “Teacher Resources” are provided in every unit section within the platform. For example, in B.10(A) Organisms and Natural Selection, the “Teacher Guide” includes background information through explanations of the gist of each concept within the content. In this instance, the guide also cites student prior knowledge from a lesson earlier in the year, therefore providing teachers a scaffolding opportunity. Another section of the “Teacher Guide” informs teachers about

common misconceptions about natural selection. There is a statement for each misconception and a clarifying statement that correctly represents current science thought.

- Instructional materials for every lesson section include an “Instructional Module.” The module contains an interactive component that aligns with the “Explain” in the 5E lesson sequence. For example, in B.13(B) Energy Flow In The Living World the interactive explains the flow of energy and matter within ecosystems and compares how matter is recycled, while energy is not conserved. Key concepts such as these are often misunderstood by students. The teacher can preview the module to better ground understanding of the content as well as prepare for obstacles or misconceptions students may experience when they engage in the interactive.
- For each unit the materials contain an extensive explanation of examples of science concepts, including grade-level misconceptions and support teachers to question students' prior knowledge with deeper questioning and activities. The essential questioning also contains explanations for students to reach mastery as the TEKS are outlined at the top of the document.

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

- In the materials, the “Implementation Strategies” document found in “Teachers Resources” for each unit category provides teachers with the intent and purpose of the instructional design of the program. For example, the document lists the different components of EduSmart's materials and states that the “Anchoring Phenomenon” component is designed to help students with real-world challenges and situations. This activity also allows students to generate questions about the phenomenon to captivate their curiosity and activate prior knowledge. The explanation for the intent and purpose of the “Instructional Modules” is that the content serves as direct instruction and that each video has multiple breaks to facilitate student discussions. The “Instructional Module Companion” is intended to aid in student comprehension of the “Instructional Module” through fill-in-the blank notes, graphic organizers, and journal prompts.
- The instructional materials align the category standards and units with a scope and sequence. The “Scope and Sequence” document found in “Teachers Resources” provides teachers with the TEKS to be covered for the unit. The scope and sequence explains the sequence in which units are suggested to be taught so that student knowledge and skills build upon one another to attain mastery of science concepts. The scope and sequence also provides suggested content materials to be used for units and standards which supports the instructional design of the course.
- The instructional design of the program is mapped out within a document titled “Implementation Strategies” made available in “Teacher Resources.” The document describes every instructional component of the lessons and explains how to use each one. Additionally, support for ELPS strategies, options for differentiated learning, suggested station activities, and how to use lesson components for review, reteach, or spiraling skills for retention and mastery is provided.
- The sequence of standards represented in “Scope and Sequence,” located in “Teacher Resources,” is designed so that students build knowledge and skills of science and engineering concepts and practices systematically throughout the year. For example, content starts with molecular building blocks and ends with a macro-view of the biosphere. The course begins with a four-week introduction to science and engineering practices and historical contributions over time. Next, science concepts start at the molecular level, proceed to cells and cell functions, continue to concepts of heredity, which then lead to ideas about evolutionary pathways. Finally, the focus turns to diversity and interdependence of organisms within ecosystems.

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- The materials explain the intent and purpose of the instructional design of the program with their "Welcome to EduSmart" videos. The videos provide the educator with support on how to navigate the course and explain how the LMS is designed with both the teacher and student in mind for learning Biology.

EduSmart Science Biology

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 course-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 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 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.

- In the materials, the "Engineering Design Challenges," provided in the "Content Library," engage students in collaborative learning activities to present a solution to a real world situation. For example, in the challenge The Good, The Bad, and The Ugly of Genome Editing Technologies, students research on genome editing technology spiraling previous knowledge in DNA, protein synthesis, and gene expression. The students work in teams to prepare a thorough presentation on the technology to a committee providing benefits and possible negative outcomes for the community.

- In the materials, an "Interactivity" component is provided for each unit category and TEKS learning standards using drag and drop, hot spot, and text entry to engage students in

meaningful sensemaking. For example, in B.5D Viruses “Interactivity,” The Virus Attack, the students use prior knowledge about DNA and cells to complete a diagram representing the lytic reproductive cycle of a virus to test their understanding of the different stages, how a virus infects a cell, and and how it relates to illness in humans.

- The “Reader” in Unit B.7(D) Applied Genetics located in Chapter B.7 Mechanisms of Genetics, provides evidence of opportunities for sensemaking and identifying with scientific thought through research and application examples. Genetic Engineering is the topic of the reader, which begins with questions tied into possible student prior knowledge. Genetic engineering is briefly explained from the technology aspect but immediately connects animal and plant breeding as the more well-known type of gene manipulation. The article goes on to provide a well-known example of genetic engineering by explaining insulin production using bacteria. The next example is how gene modification of plants can help people who are malnourished. And finally, the text explains the benefits and possible problems of genetic engineering and how people struggle with ethical issues that arise with new technologies.
- Students have an opportunity to think and act like a scientist by engaging in a lab simulation titled Onion ‘Cry’sis. The simulation is located in Unit B.6(A) Cell Cycle, Chapter B.6 Biological Structures, Functions, and Processes. The simulation has a click and drag feature that allows manipulation of a slide and microscope. The task is to analyze an onion root tip slide to calculate the time a cell spends in each phase of mitosis. Students first select one of four hypotheses and then begin the investigation. A student makes observations over several areas of the slide and records data in a chart. The data is analyzed and conclusions are explained through both written and spoken text provided within the simulation.
- The materials support students’ meaningful sensemaking through reading, writing, thinking and acting as scientists consistently. Each teacher can implement strategy guides with suggestions for learners and differentiated instruction to engage students. Each unit provides recommendations for writing and speaking with the use of sentence stems and journal writing prompts. The modules provide teachers with a structured set of ELPS on how teachers should implement reading strategies and interactives for students to work with one another to learn, discuss, and think as scientists with the content.

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

- In the materials, each unit provides a “Reader" component found in the “Vocabulary and Literacy” section. This component engages the student with grade-level appropriate scientific texts to gather evidence and develop understanding of concepts. For example, B.6B Cell Differentiation, the “Reader” on Cell Specialization, provides students an explanation of how specialized cells develop in plants and animals. Graphics included in the reading further develop the students' understanding of the concepts. A multiple choice comprehension check is provided along with the reading to check for understanding.
- In the “Vocabulary and Literacy” section for each category standard of the materials, the “WordExplorer" feature provides opportunities that allow students to increase their understanding of content through a 3-part activity that leads the students from visual to fact-based statements. The students engage in visual literacy where they select images that best represent a word. “WordExplorer” then requires students to read facts about the specific vocabulary term and choose the correct statements. Finally, “WordExplorer” increases the difficulty by posing fill-in-the-blank style statements where students select appropriate words to complete a statement that represents correct application of the terminology.

- There is evidence in Chapter B.7 Mechanisms of Genetics, Unit B.7(A) Molecules of Heredity–DNA, of multiple opportunities for students to gather evidence and develop understanding within the "Instruction Module" and the "IM Companion." The "Instruction Module" consists of a virtual interactive where students click through informational screens as they listen to a recorded voice describing images of the structure of DNA and comparisons to RNA. Additionally, students learn about the historical contributions of scientists and their research centered on the structure of DNA. The "IM Companion" provides a note-taking guide, including a word bank for fill-in-the-blank sentences and an opportunity to label a diagram of the DNA molecule.
- In the "Reader"Did Life Come from Outer Space, located in Unit B.7 Molecules of Heredity–DNA, students have an opportunity to engage in course appropriate text in order to explore and examine scientific thought as to how DNA and RNA came to be on Earth. The very first paragraph describes the different ideas scientists have about how life started. Some believe in the primordial soup line of thought while others think meteorites play a more significant role. The text explains the types of tests scientists performed in order to analyze samples of meteorites and how components of DNA and RNA were found present. Scientists hope that continued research involving samples from asteroids provides more information. The "Reader" helps students grasp the scientific processes of gathering more and better information to improve our understanding of life on earth.
- In Unit 9(A) Evolution: Common Ancestry, students are provided multiple opportunities to engage with course-level appropriate scientific texts. They are asked to gather evidence and develop an understanding of concepts with hands-on activities. The activities challenge students to read the text, complete a venn diagram comparing and contrasting vocabulary terms, and analyze scientific evidence of drawings to determine if species share a common ancestry and to identify homologies between species.

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.

- In the materials, "Hands-on Activities" provide students opportunities to engage in various written and graphic modes of communication to support them in developing and displaying an understanding of scientific concepts. Students plan and implement descriptive, comparative, or experimental investigations to design solutions to real world problems. In "Hands-on Activity" B.13.A Attack of the Killer Plants, students work in groups and as a class to perform an experimental investigation concerning the factors that affect the distribution of plants, specifically allelopathy. Students read background information and an introduction, formulate a written hypothesis and response to questions, analyze a distribution map, conduct the experiment, adhere to lab safety, and observe and record data in a table and scatter plot to bring them to a valid conclusion. Students extend their learning through reflection questions and research.
- In the material, the "Instruction Modular Companion," found in the "Instruction" section of each unit, provides opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying understanding of scientific concepts. Each companion includes a note taking section, a graphic organizer, and a written response to a prompt or question. For example, B.11B Enzymes "Instruction Companion," the students complete statements about biochemical reactions and enzymes and factors that affect enzymes using a word bank. Students then analyze statements in a frame game graphic organizer to match each frame with correct enzyme terminology. In the final activity, students

read about a type of yeast and provide a written response based on the information and data provided in the paragraph.

- Students engage in various modes of communication to develop an understanding of science concepts. For example, in Chapter B.9 Biological Evolution, Unit B.9(A), a “Reader" is provided so students can build an understanding of evolution by examining scientific evidence. The title of the “Reader” is Evidence of Common Ancestry. The reader consists of textual explanations and descriptions, interesting facts noted within callout boxes, images such as drawings, maps, and photographs, and charts. Five questions at the end provide a checkpoint for student understanding.
- In Chapter B.13 Interdependence within Environmental Systems, Unit B.13(B) Energy Flow In The Living World, there are several opportunities for students to engage in a variety of communication styles to develop and display understanding. For example, the “Instructional Module” explains Energy Flow in the Living World. The activity provides information and occasional checkpoints for understanding. The “IM Companion” provides a note-taking guide that includes a word bank to complete sentences aligned to the previous activity. The “IM Companion” also includes an opportunity for students to complete a graphic by identifying levels of producers and consumers within a food web. Next, the students engage in a gamified interactive titled Marine Energy Pyramid. Additional types of communication are available within section materials that support vocabulary development, writing through journaling, and reading.
- In Unit 9(A) Evidence of Evolution: Common Ancestry provides detailed graphics embedded within the text for students to understand scientific concepts while reading. The unit provides video resources and digital interactives with “WordExplorer” to practice with the content.

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.

- In the materials, the “Engineering Design Challenges” provided in the “Content Library,” encourage 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. During the challenges, students collaborate to present solutions to real world situations. For example, in the challenge The Good, The Bad, and The Ugly of Genome Editing Technologies, acting as genome editing teams, students conduct research on genome editing technology spiraling previous knowledge in DNA, protein synthesis, and gene expression. The students are tasked to create a presentation that the team can give to the planning and zoning committee with enough information so that the committee member can make an informed decision to allow the genome company to build in the community or not. Presentations are assessed based on student design analysis, a criteria specific rubric, and a product discussion where students explain the success of their design and what they would do differently.
- Students engage in scientific thinking through simulations and lab activities provided throughout the materials. As students perform real world simulations and investigations, they are guided through the lab processes and engage in thinking like a scientist/engineer in order to complete the activity. For example, for B.6A Cell Cycle, in the Simulation Onion 'Cry'sis found in “Online Activities,” students perform a virtual microscopy lab activity. They follow the scientific process to select a hypothesis, observe, and identify onion root tip cells in different stages of the cell cycle. Students must make predictions, observe and record data, and form a conclusion from this simulation. The simulation allows them to engage in phenomena and make sense of concepts while acting as scientists.

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- There is an introductory activity titled “Anchoring Phenomenon” at the start of each chapter section within the platform. The purpose of the activity is to introduce an image or video that represents a real world phenomenon in relation to the section content. For example, in Unit B.13(D) Ecological Balance of Chapter B.13 Interdependence within Environmental Systems the “Anchoring Phenomenon” titled Environmental Change is a video of a wildfire. There is no text or sound as the images play through. The teacher version includes the appropriate TEKS, an image from the video, a series of questions for students, and a section for teacher background and information about the phenomenon. Also within the document, teachers are encouraged to resist answering questions or explaining phenomena, consequently supporting the students’ productive struggle.
- An example of students acting as scientists and engineers is evidenced in Chapter B.12 Biological Structures, Functions, and Processes, Unit B.12(A) Structural Hierarchy in Biological Systems. In the “Engineering Design Challenge,” student teams are challenged to design an electronic bandage to provide and monitor rapid healing of an injury. The challenge includes research on electronic bandages and how they work, comparison of different approaches to healing technologies, a detailed blueprint, creation of a prototype, name and logo for the product, and a description and defense of your team’s design for improvements. All components are part of a presentation delivered to a “Board of Directors.” The students are provided with a guiding document describing the features of the challenge as well as a rubric aligned to specific TEKS.
- The “Anchoring Phenomenon” in Unit 9(A) Evolution: Common Ancestry provides a soundless video for the anchoring phenomenon that will allow for productive struggle and deep conversation for students because there is no explanation to the video. Students will have to synthesize what they view in the video and begin to think and act as scientists to explain what they are observing and make sense of the concepts to articulate what is actually occurring with the moving continents. This theme is consistent throughout the unit asking students to explain their reasoning of two terms ie. hypothesis and theory and through journal writing prompts.

EduSmart Science Biology

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 course.	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 requirements 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 course. Materials provide opportunities for students to construct and present developmentally appropriate written and/or 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.

- The materials prompt students to use evidence to support their hypothesis and claims. Throughout the simulation, students collect data and evidence and are prompted to analyze the data and evidence collected to support their hypothesis. For example, under B.6 Biological Structures, Functions, and Processes in B.6(A) Cell Cycles, in "Explore," you will find the Onion Cry'Sis activity where students perform a virtual microscopy lab. Students must analyze different cells to determine what stage of the cell cycle they are in. They collect the evidence to prove whether all cells go through the cell cycle at the same time or at different times. Once they have collected their data and analyzed it they are able to use it to support their hypothesis.
- In the materials, "Hands-on" activities prompt students to use evidence to support their hypotheses and claims through science and engineering practices. Students plan and implement descriptive, comparative, or experimental investigations to design solutions to real world problems. In hands-on activity B.13 A , Attack of the Killer Plants, students work in groups and as a class to perform an experimental investigation concerning the factors that affect the distribution of plants, specifically allelopathy. Students read background information and an

introduction, formulate a written hypothesis, respond to questions, analyze a distribution map, conduct the experiment, adhere to lab safety, and observe and record data in a table and scatter plot to bring them to a valid conclusion. Students extend their learning through reflection questions and research.

- In the materials, simulations and lab activities provided throughout the chapters prompt students to use evidence to support their hypotheses and claims. As students perform real world simulations and investigations, they are guided through laboratory procedures. For example, for B.6A Cell Cycle, in the Simulation Onion 'Cry'sis found in “Online Activities,” students perform a virtual microscopy lab activity. They follow the scientific process to select a hypothesis, observe and identify onion root tip cells in different stages of the cell cycle. Students must make predictions, observe and record data, and form a conclusion from this simulation.
- An example of materials that prompt students to use evidence to support their claims is provided in Chapter B.9(A) Evidence of Common Ancestry. The activity titled “Evidence Provided by Homologies” instructs students to observe, analyze, and evaluate drawings of the bone structure present in the forelimbs of three different species of mammals. Students collect both qualitative and quantitative data from the drawings and record the information in a chart. Students then use their evidence to support or refute the possibility of common ancestry. Another investigation titled “Mapping Environmental Change,” located in B.13(D) Ecological Balance, provides an opportunity for students to use evidence to support a claim. The investigation centers on changes over time in the migratory patterns of monarch butterflies. Students are provided with a variety of background information and data points to analyze and record. Evidence is required to substantiate their claim.
- The materials prompt students to use evidence to support their hypothesis and claims with multiple hands-on activities. Students are given scenarios and asked to explain their answer or infer with prior knowledge and information from the current unit. The materials provide several Claim, Evidence, and Reasoning (CER) templates and open-response activities and worksheets.

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

- The materials include embedded opportunities to develop and utilize scientific vocabulary in context. One way is through “WordExplorer.” This is a three part activity that guides the students from visual to fact based statements. Students are able to practice academic vocabulary in context through the fact based statements in a low risk activity. For example, in B.8(A) the “WordExplorer” for Meiosis guides the students through visuals of the vocabulary, then prompts the student to read the facts regarding the term, and then finally students are asked to complete a drag and drop activity where they complete a sentence by dragging words into the correct blanks. The “WordExplorer” in Chapter B.5(B) Comparing Prokaryotic and Eukaryotic Cells, has students develop vocabulary skills using digital flashcards. Each flashcard includes an image and the term. A student clicks on a flashcard and engages in three different interactions.
- In the materials, an “Interactivity” component is provided for each unit category and TEKS learning standards using drag and drop, hot spot, and text entry to develop and utilize scientific vocabulary in context. For example, in B.5D Viruses, “Interactivity,” The Virus Attack, the students use prior vocabulary knowledge about DNA, cells, and viruses to complete a diagram representing the lytic reproductive cycle of a virus to test their understanding of the different stages, how a virus infects a cell, and and how it all relates to illness in humans.
- In the “Vocabulary and Literacy” section for each category standard of the materials, the “WordExplorer” feature provides opportunities that allow students to develop and utilize

scientific vocabulary in context and to increase their understanding of the content. The students engage in a visual literacy activity where they select images that best represent the word. “WordExplorer” then requires students to read facts about the specific vocabulary term and choose correct statements. Finally, “WordExplorer” increases the difficulty by posing a fill-in-the blank style statement where students select appropriate words to complete a statement that represents correct application of the terminology.

- Opportunities to develop scientific vocabulary are embedded within the materials. For example, The “Instruction Module” in Chapter B.5(B) Comparing Prokaryotic and Eukaryotic Cells emphasizes the vocabulary through audio pronunciation, typed informational text with vocabulary words written in a different color, and images displaying examples of the word. The embedded audio pronunciation allows students to listen to the word pronounced and includes the definition. This is especially useful for special populations that require or need accommodations to build their vocabulary. The “IM Companion” provides additional opportunities for students to develop and utilize scientific vocabulary.

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

- The materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and course. The “Anchoring Phenomenon” engages students in grade-level discourse as it relates to core content knowledge. For example, the “Anchoring Phenomenon” for B.5(D) Virus, shows a video of viruses and their structures. There is no audio or descriptions to front load information, so students are able to have their own questions and discussions as to what is happening in the video. The “Teacher Guide” for the “Anchoring Phenomenon” provides question prompts and teacher background information to help facilitate discourse in the classroom. Teachers use the question prompts to promote close observations and critical thinking that support discourse and possible argumentation. Another way the materials do this is in their “Instructional Modules.” For example, “Instructional Module” for B.7(A), Nucleic Acid Structure, gives information about DNA and then asks the question "How does ribose differ in structure from deoxyribose?" The “Instructional Module” pauses after the question is presented to provide discourse opportunities for teachers and students.
- The “Engineering Design Challenges” integrate argumentation and discourse throughout to support students’ development of content knowledge and skills as appropriate for the concept and course. For example, the “Engineering Design Challenge” for B.12A, Injury Recovery and Illness Monitoring with eBandage Technology, requires that students work collaboratively with a group to design the best type of electronic bandage. The groups research the topic, prepare a presentation for their peers and the Board of Directors at a bandage company. Their goal is to inform and persuade others that their design solution is the best. The students should be prepared to defend their solution through respectful discourse as they present their findings to the class.
- An investigation titled Mapping Environmental Change, located in B.13(D) Ecological Balance, includes an opportunity for student argumentation within the lab group setting. The investigation centers on changes over time in the migratory patterns of monarch butterflies. Students are provided with a variety of background information and data points to analyze and record. A Claim-Evidence-Reasoning graphic organizer is used for data analysis purposes. An argumentation session allows lab groups to share their arguments based on the collected data and claims. The purpose is to help students improve their arguments through feedback. There

are other activities such as laboratory investigations, hands-on group activities and engineering practices that throughout that implement student discussion and scientific opinions.

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

- The materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations to phenomena and/or solutions to problems using evidence acquired from learning experiences. The "Journal" prompts, found in the "Vocabulary and Literacy" section, provides students with opportunities to present developmentally appropriate written arguments. In the journal prompts, students are presented with either a phenomenon or a problem and they must construct a written explanation or solution using evidence from their learning. For example, for B.5(D) journal, Journal 1- Viruses, students are asked to argue what type of virus the farmer would want to use to infect the grape crops in order to kill off a bacteria and if this method could be successful or not. Students justify the phenomena using their knowledge about the concepts and the information in the paragraph to write a response to the statement.
- In the materials, the "Engineering Design Challenges" provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations to phenomena and solutions to problems using evidence acquired from learning experiences. In the challenges, the students collaborate to develop written or verbal arguments. For example, the "Engineering Design Challenge" for B.12A, Injury Recovery and Illness Monitoring with eBandage Technology, requires that students work in groups to design the best type of electronic bandage. Students take on the role of an engineer to provide a prototype of self-monitoring e-bandage. Student teams research the topic, design and create a prototype, and create a product presentation. The groups research the topic and prepare a presentation to present to the other design teams and the "Board of Directors" at a bandage company to inform and persuade them that their design solution is the best. The students prepare to defend their solution as they present their findings to the class.
- The "Anchoring Phenomena" at the beginning of each unit provides brief clips of real world scenarios that allows the teacher to implement written or verbal explanations from the students using evidence from the current or previous units of their learning. Students have opportunities to construct and present arguments and explanations of phenomena using evidence. For example, the "Journal" prompt–Natural Selection and Reproductive Success in Chapter B.10(B) Factors Leading to Natural Selection prompts students to apply what was learned about natural selection in the "Instruction Module" through a written response. Students read through the observed phenomena, assess a conclusive statement using textual evidence, then explain how the statement does or does not align with probable inferences they have learned through the text.

EduSmart Science Biology

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.

- The materials provide the teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. Within each subunit, there is a unit "Teacher Guide." For example in Unit 7: Mechanisms of Genetics in subunit B.7(B) the "Teacher Guide" gives the common misconceptions that students can have about the content so that teachers can anticipate those incorrect answers. You will also find a section with "Essential Questions" with "Teacher Exemplars" so that the teachers can refer back to and anticipate student correct responses. Along with the unit "Teacher Guide," the materials provide teachers with unit "Implementation Strategies" to help implement the content and suggest how to question students and provide guidance on how to listen and assess student responses. The materials suggest multiple ways for teachers to allow students to demonstrate their learning through intentional grouping/pairing, writing assessments, student reflections, and journal writing and questioning. The material achieves this is through the use of the "Journal Activities" found in the accompanying "Teacher Documents." The "Journal Activities" are short, open-ended, written comprehension checks that allow the students to explore their understanding of the content. In the "Teacher Document" the instructor can find an exemplary response to support and guide in their implementation. For example the "Teacher Document" found in Unit 7: Mechanisms of Genetics in subunit B7.(B) "Journal Activity" titled Gene Expression. The "Teacher Guide" also

provides the TEKS for vertical alignment and prior knowledge that the students can access to begin to make connections with the current unit TEKS.

- In the materials, the teacher document for “Hands-on Activities,” provides guidance on anticipating student responses. For example, the “Hands-on Activity” for TEKS B.12(A)(B), "C" for Yourself, asks students to test the relative Vitamin C content in common juices. The teacher directions for the activity provides the teacher with the background information specific to the teacher in anticipation of student responses and questions prior to beginning the activity. For example, students may ask, how do we get Vitamin C? The teacher's background information provides the answer that Vitamin C is obtained through diet only. To deepen student thinking, the teacher may then ask students, what foods do they think provide Vitamin C? The teachers' directions provide examples of foods that are good sources of Vitamin C like broccoli and cabbage to identify if student responses are correct, incorrect, or partially correct. A reflection activity asks students to use pooled classroom data to make dietary recommendations for people with a Vitamin C deficiency. Also, there are two research activities used as extensions. One is focused on career paths related to the investigation, and the other leads to a second investigation related to Vitamin C.
- In the materials, each TEKS category standard is supported by an “Anchoring Phenomenon” which is designed to engage students in phenomenon. For the “Anchoring Phenomenon” B.12 Sweat, students will see a man sweating and bent over in exhaustion after outdoor exercise. The phenomenon should engage students in using their prior knowledge to respond that the man is sweating and discuss sweat and fatigue. The teacher document for this phenomenon provides an initial guiding question to guide student thinking. The teacher is provided with brief information in the teacher's document about sweat and its cause to identify if student responses are correct, incorrect, or partially correct. Another example is shown in Chapter B.6(A) Cell Cycle. It begins with a brief “Anchoring Phenomenon" video of a cell going through the cell cycle. The teacher has access to a document that provides question prompts, instructions on how to use anchoring phenomenon, and background information about the science concept.

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

- The materials include teacher guidance on how to scaffold and support students’ development and use of scientific vocabulary in context through the use of the “Implementation Strategies Guide.” The guide provides teachers with suggestions on how to leverage vocabulary in their science classroom. For example, it gives them ideas for activities, instruction, and stations. The guide provides examples on supporting and scaffolding student's development of scientific vocabulary in context. In the materials, the “Implementation Strategies Guide” also includes “WordExplorer” online interactive activities. The guide explains how the activity supports and scaffolds student's development of scientific vocabulary in context from visual literacy, to textual facts, to application of words. For example, B.10A Organisms and Natural Selection, the “WordExplorer” activity begins with science terms flashcards- habitat, species, population and variation. When each is selected, correct and incorrect visuals of the term are shown for correct ones to be selected. The student moves on to correct fact selection for the term and then applies the terms in a drag-and-drop sentence completion activity.

- Within the “ELPS Strategies,” the materials include teacher guidance on how to scaffold and support students’ development and use of scientific vocabulary in context by providing implementation strategies for listening, reading, speaking and writing in an academic tone by providing a plethora of instructional accommodations for not just English Language Learners, but for all learners based on their individual needs. For example in B.12 (A) and B.12(B) Structural Hierarchy in Biological Systems “ELPS Strategies Teacher Guide” suggests that the teachers pre-teach vocabulary, provide conversation stems, word banks, word lists, and allow the students to use their native language to incorporate academic vocabulary at their own pace and build upon their knowledge.
- In the materials, the “Scope and Sequence” found in “Teacher Resources” includes teacher guidance on how to scaffold and support students’ development and use of scientific vocabulary in context. The “Scope and Sequence” provides teachers with the vocabulary required for each TEKS and unit, new grade level words, and words with prior knowledge. This allows the teacher to scaffold vocabulary based on student need. For example, B.5B Comparing Prokaryotic and Eukaryotic Cells, words with prior knowledge include cell membrane, chlorophyll, nucleus, and vacuoles. New grade level words include anaerobic respiration, endosymbiotic theory and multicellular organisms. Some of the vocabulary words can also be found in the “Essential Questions” section.
- The lesson component “Instruction Module Companion” includes strategies and activities specifically for building understanding of concepts by using vocabulary in context. Other lesson components such as “Word Explorer, Readers, and Journal Prompt” also provide guidance for teachers to help students develop and use scientific vocabulary in context. For example, The “Instructional Module Companion” also has a word bank of academic vocabulary for the student to follow along with. The information can be chunked and scaffolded to meet the needs of the students. The “Instructional Module” video contains real world scenarios and the academic words are in a different color than all of the closed captioning text.

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

- The “Engineering Design Challenges” found in the course materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims. For example, the Engineering Design Challenge for B.12A, Injury Recovery and Illness Monitoring with eBandage Technology, provides guidance in the teachers background information indicating students should understand major body systems, homeostasis and vital functions for the challenge. Teachers should know the functions of each system to help students understand how body systems work together to ensure animals overall health. The challenge provides additional guidance on design analysis, product discussion, and a rubric to help the teachers determine the student's success on completing the challenge. There are six deliverables assessed in the rubric: design of a prototype, presentation, name and logo, blueprint of the prototype, model of the prototype, and results aligned with current technology.The challenge requires that students work collaboratively with a group to design the best type of electronic bandage. The groups research the topic and prepare a presentation to present to the other design teams and the “Board of Directors” at a bandage company to inform and persuade that their design solution is the best. The students should be prepared to defend their solution through respectful discourse as they present their findings to the class.

- The teacher document for the “Anchoring Phenomenon” also provides teacher guidance on preparing for student discourse. For example, the “Anchoring Phenomenon” for TEKS B.8(A) , Genetic Diversity, students view an image of a mother dog with her puppies. The activity provides an opportunity for student discourse and assists students when citing evidence to verbal claims. The “Teacher Document” provides guiding and probing questions for students to answer after observing a brief video. Teachers are provided with additional background information about genetic diversity and reminded that the video is used as a reference as students continue learning. By previewing the teacher document ahead of time, teachers can access background information to assist when fielding questions and understand that they should not explain genetic diversity. There is also more information listed for the teacher such as explaining that genetic variation increases during meiosis because of independent assortment and recombination. The “Anchoring Phenomenon” for B.10B Factors Leading to Natural Selection video shows two giraffes interacting. The video does not include sound or captions, so students observe and recall their prior knowledge to formulate their own questions and discussions about what is happening in the video. The teacher document for this phenomenon provides an initial guiding question to facilitate student thinking, How high can you go? Additional question prompts are provided for the teacher to guide the discussion further. The “Teacher Document” also recommends that the teacher refer back to the phenomena video to reinforce the concept of natural selection as evidence of natural selection is presented. More information on explanations of natural selection by Charles Darwin and alternative explanations by paleontologists are provided for the teacher to gauge and provide feedback to student responses.
- The materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims by providing the teacher with “Analyzing Results/Discussion Sentence Stems” for students in the “ELPS Strategies” based on the learning levels of students. The sentence stems are specifically prepared for student discourse that can be posed to the students either for verbal or written responses. The instructional materials do not however provide grading rubrics for teachers on how to grade the student open responses. A rubric is not provided in the materials with a standard set of questions or criteria specific to any one topic or concept. However the “Unit Teacher Guide,” provides responses to several essential questions and misconceptions that could be used as a rubric to grade and assess student responses. For example, one of the essential questions asks, " How do the various organ systems in animals work together to maintain homeostasis?" The teacher's answer states that, " homeostasis is the process by which the body maintains a stable internal environment despite changes in the external environment. The various organ systems in animals work together to maintain homeostasis through complex interactions and feedback mechanisms. For example, the nervous system is responsible for sensing changes in the external and internal environment and responding to them appropriately. It sends signals to other organ systems to initiate responses that maintain homeostasis. For instance, if the body temperature rises, the nervous system signals the sweat glands to produce sweat to cool down the body. The respiratory system plays a vital role in regulating the pH of the blood by removing carbon dioxide from the body and supplying oxygen to the tissues. Carbon dioxide is a waste product of cellular metabolism and needs to be eliminated to maintain the acid."

EduSmart Science Biology

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

- The materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions. For example, the "Teacher Guide" for the "Hands-on Activities" includes any necessary background knowledge, supplies, step-by-step directions, safety information, and student resources needed in facilitating the sharing of thinking and finding solutions. They are found in every unit that contains a "Hands-on Activity." The implementation guide suggests that the activities can be completed in groups or as part of a station rotation. Each activity includes a "Teacher Version" of the activity with teacher directions and correct answers and responses. Through this information, teachers can facilitate students' thinking and finding solutions to problems. For example hands-on activities in B.13 (B) the Energy Pyramid from and Stability Disruptions to the Ecosystem Field of Study allow students to create an energy pyramid of their choosing with a provided word bank and word list and a field study that students work together for a common solution that allows them to explore their learning, thinking and discourse with one another. The teacher's directions provide acceptable responses for guidance.
- In the materials, the "Scientific and Engineering Practices" activities support and guide teachers in facilitating the sharing of students' thinking and finding solutions. Each activity includes a "Teacher Version" of the activity. Teachers use the document to familiarize themselves with background information, instructions for the activity, explanations of student responsibilities and processes, and a description of the culminating class discussion. Through this information, teachers can facilitate students' questioning as well as students finding solutions to problems. For example, the activity for B.4B, The Twin Study: Astronaut Scott and Mark Kelly, gives teachers background information about NASA astronauts Scott and Mark Kelly. NASA completed this study to determine the long term effects of space travel by comparing Scott Kelly, a veteran astronaut with his identical twin brother who never explored space. This background information supports teachers in facilitating discussions in their classrooms with their students prior to beginning the activity. In groups, students then research the Twin Study and conduct a cost-benefit analysis on the long-term effects of space travel and share their findings in an infographic. For student debate, the teacher can then pose the question, "Is long term space travel worth the risk to humans?" Students share their thoughts and solutions about the effects of space travel on DNA.
- There is a "Teacher's Guide" for every unit in the platform. The guide is located in "Teacher Resources" and provides the TEKS, background information about the content for the teacher, a section on prerequisite knowledge students have from earlier grades, common misconceptions, and essential questions. The section on misconceptions includes information correcting each incorrect thought. This section supports and guides teachers in facilitating the sharing of student thought. The "ELPS Strategies" provide teacher guidance on how to facilitate student thinking with instructional methods and strategies such as peer collaboration with creating a graphic organizer, conversation stems, think-pair-share, and other various methods teachers can incorporate to promote student thinking and problem solving. All activities can be completed individually or collectively in groups.

EduSmart Science Biology

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

Meets | Score 2/2

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

Materials include a range of diagnostic, formative, and summative assessments that include formal and informal opportunities to assess student learning in a variety of formats. Materials assess all student expectations and indicate which student expectations are assessed. Materials include assessments that integrate scientific concepts and science and engineering practices. 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.

- The materials include a range of diagnostic, formative, and summative assessments that include formal and informal opportunities to assess student learning in a variety of formats. For example, B.10.A Organisms And Natural Selection, provides the teachers with several different ways to formally and informally assess their students through the “Anchoring Phenomenon,” and the embedded check for understanding questions in the “Instructional Module, WordExplorer, Journal Questions, Hands on Activity, and the EduSmart Quiz.”
- In the materials, the “Edusmart Quiz” found in the “Assessments” section for each category, provides an opportunity to assess student learning. The format of the quiz is developmentally appropriate and is based on the standards. Teachers can use the quiz to formally assess student knowledge prior to the lesson, at the end of a unit, or to monitor progress during the unit. For example, in B.10.A Organisms and Natural Selection, students are given a ten-question multiple choice quiz that assesses their understanding of the concepts. The quiz provides teachers with data on their student's learning and knowledge.
- Materials include a range of assessment types in a variety of formats. For instance, Chapter B.5.A Biomolecules includes an online “Interactivity” that assesses student understanding of biomolecules. There are informational sections with checkpoints where students score points in a game-like activity. Both students and teachers can view the points earned. Students have the

option to increase their score by playing an additional round. This type of activity would work for either a diagnostic or formative assessment. Another example can be found in the "Interactivity" titled "What's the Mechanism?" found in B.10.D Evolutionary Mechanisms. The students are guided through an activity where they review evolutionary mechanisms. They are given pictures and asked to identify the correct mechanism of gene flow, mutation, founder effect, and bottleneck effect. Teachers receive the score and can use the data to make informed decisions regarding interventions, reteaching, or extension opportunities.

- The "WordExplorer" activity in B.10.C Natural Selection and Biological Diversity is an example of an assessment format that contains three layers of checkpoint opportunities. The first layer displays vocabulary cards with the term and representative image. A student selects one card at a time. Four new cards appear on the screen and the student selects one or more cards that represent the term. If successful, the student reads four facts about the concept and selects all that are true. The last activity is a drag-and-drop vocabulary activity where the selected words complete the sentence correctly. The completed sequence of activities allows the student a view of the definition and the term. Teachers can assign the activity and view the scores.
- Throughout each unit and with multiple ways for students to show what they know, the materials include a range of diagnostic, formative, and summative assessments to assess student learning in a variety of formats. In B.13.C Nutrient Cycling in the Environment, the "IM Companion '' is provided as a formative assessment for students. It includes fill-in-the-blank and a word bank for teachers to diagnose vocabulary and current content knowledge. The unit also provides a formative and engaging interactivity for students to continually learn during a simulation. Students must also answer embedded questions throughout the activity. In B.13.C Nutrient Cycling in the Environment, there is a summative assessment for students which is tailored for each unit.

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

- The materials assess all student expectations and indicate which student expectations are assessed. Each unit and chapter is based on and named after a TEKS. For example, B.5 Biological Structures, Functions, and Processes, B.8 Mechanisms of Genetics, and B.10 Biological Evolution. Each subunit and subchapter is named after the part of that TEKS that it is associated with. For example, B.5.D Viruses, B.8A Meiosis, and B.10B Factors Leading to Natural Selection. Each question on the EduSmart "Quizzes" shows the students what TEKS is being assessed in that specific question.
- In the materials, the "Scope and Sequence" table found in the "Teachers Resources" for each category, assesses all student expectations and indicates which student expectations are assessed. The "Scope and Sequence" contains a table that outlines specifically what will be taught in the high school biology course. For example, for B.6 Biological Structures, Functions and Processes Cell Differentiation, the table indicates the TEKS B.6, the student knows how an organism grows and the importance of cell differentiation. The table provides the specific TEKS for the lesson or unit, B.6B explains the process of cell specialization through cell differentiation, including the role of environmental factors. Essential questions a student is expected to be able to provide a valid response to are also provided. Vocabulary terms that are expected to be learned are also included in the table like blastula, stem cell, and cancer. The teacher can then monitor, evaluate, and respond to student progress toward development of appropriate course content and skills.

- In the materials, the "Unit Teacher Guide" found in "Teachers Resources," indicates which student expectations are assessed and how the materials align with the curriculum for the subject in a manner that is easily identifiable by the teachers. The "Unit Teacher Guide" provides the TEKS addressed in the unit, prerequisite knowledge, and essential questions. For example, for TEKS B.5A Biological Structures, Functions and Processes: Biomolecules, the guide indicates the student is expected to know that biological structures at multiple levels of organization perform specific functions and processes that affect life, and the student is expected to relate the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids, to the structure and function of a cell. The guide also indicates that students should have prerequisite knowledge of the cell from middle school. The teacher can then monitor, evaluate, and respond to student progress toward development of appropriate course content and skills.
- The "EduSmart Quizzes" questions also show the students what TEKS are being assessed in each question. For example, the "Edusmart Quiz" in Chapter B.12A and B12.B Structural Hierarchy in Biological Systems displays the assessed standard just below the question number. Students can select an answer choice and then check their response to see if they understood the concept. In this quiz, about half the questions assessed understanding of 12.A and the remaining questions assessed 12.B. The print versions of the quiz and answer key do not indicate the standards assessed.
- The materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment with questions from the current topic that are specifically indicated on the summative assessments. The quiz questions are STAAR level questions to ensure students are meeting the expectation of meeting the STAAR EOC requirements. The materials also assess student learning with hands-on activities, engineering designs for STEM, and student engagement activities. For example, Chapter B.12(A)(B)Structural Hierarchy in Biological Systems contains an "Interactivity" titled B.12(A)(B) Organ Systems which assesses the appropriate standards as indicated by the assignment. The interactivity describes scenarios involving organ systems and the student selects which two work together in each scenario. An explanation follows a correct answer and limited extra chances are available if the answer is incorrect. Scores are available for the teacher to analyze. The lesson materials are TEKS based and include video lessons, module and module companions, hands-on activities, vocabulary practice, journal prompts and summative assessments.

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

- The materials include assessments that integrate scientific and engineering practices. For example, the "Hands-on Activities" are a great way in which they do this In B.13 Interdependence within Environmental Systems, under B.13(B) Energy Flow In The Living World in the "Hands-on Activities" tab you will find the B.13(B) Energy Pyramid activity. In this activity students are asked to complete a schematic of an energy pyramid and analyze the energy relationships between different organisms in the energy pyramid by using the set of terms provided. The "Hands-on Activities" are found in each category unit and include assessments that integrate scientific concepts and science and engineering practices. During these activities, students plan and implement descriptive, comparative, or experimental investigations to design solutions to real world problems. In "Hands-on Activity" B.13A , Attack of the Killer Plants, students work in groups and as a class to perform an experimental investigation concerning the factors that affect the distribution of plants, specifically allelopathy. Students read background

information and an introduction, formulate a written hypothesis and response to questions, analyze a distribution map, conduct the experiment, adhere to lab safety, and observe and record data in a table and scatter plot to bring them to a valid conclusion. Students extend their learning through reflection questions and research. The teacher can monitor, evaluate, and respond to student progress during the course of the activity.

- In the materials, the "Engineering Design Challenges," provided in the "Content Library," include assessments that integrate scientific concepts and science and engineering practices. During the challenges students collaborate to present solutions to real world situations. For example, in the challenge The Good, The Bad, and The Ugly of Genome Editing Technologies, acting as genome editing teams, students conduct research on genome editing technology spiraling previous knowledge in DNA, protein synthesis, and gene expression. The students are tasked to create a presentation that the team can give to the planning and zoning committee with enough information so that the committee member can make an informed decision to allow the genome company to build in the community. Presentations are assessed based on student design analysis, a criteria specific rubric, and a product discussion where students explain the success of their design and what they would do differently. The teacher can monitor, evaluate, and respond to student progress during the course of the activity.
- The "IM Companion" in Chapter B.9A Evidence of Common Ancestry contains a journal entry assessment opportunity to check for understanding of the concept of common ancestry combined with an assessment of science practices and critical thinking in data analysis. Students analyze data about three different species and their comparative relation as measured by the number of shared amino acids for a specific protein. Students cite evidence to support which two species share a more recent common ancestor. Students then use the data to select the cladogram that best represents the ancestral relationship between the three species.
- Materials, such as the "Simulation" B.10B Food for Finches, represent an assessment opportunity that integrates science concepts and practices with recurring concepts. This simulation is a lab activity that mimics speciation that comes from selection pressures of variation in beak size and types of food sources. The student makes a hypothesis, investigates and collects data within a scenario that simulates a field study, and then draws conclusions based on evidence from the data analysis. When the activity is assigned and completed, the teacher can access the score.
- The materials include assessments that integrate scientific concepts and science and engineering practices with the "Engineering and Design Practice" such as the one in B.13C Nutrient Cycling in the Environment. The materials also include a "Science Investigation Activity" from B.6A thinking like a scientist and science concepts with investigating the cell cycle. Students are to think like scientists and are given a cell cycle disruption and are to demonstrate how to prevent further cell cycle disruptions. The materials include an entire unit titled "Scientific and Engineering Practices" that includes an activity and an assessment.

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

- The materials include assessments that require students to apply knowledge and skills to novel contexts. They achieve this through the "Readers." The "Readers" are designed to connect a standard to a real-world scenario and conclude with a 5-question probe that requires the student to apply their knowledge to novel context. For example, the "Reader," Did Life come from Outer Space for B.7A, tasks the student to read the overview of research on molecules found in asteroids that lead to a possibility that building blocks of DNA came to Earth from

space. Students are then asked 5 questions that check their depth of knowledge of DNA and its possible origins through varying types of questions such as direct recall, true or false, and open-ended responses. This allows students the opportunity to apply knowledge and skills they gained to novel contexts provided in EduSmart.

- The "Engineering Design Challenges" include assessments that require students to apply knowledge and skills to novel contexts as appropriate for course content and skills. For example, the "Engineering Design Challenge" for B.12A, Injury Recovery and Illness Monitoring with eBandage Technology, requires that students work collaboratively with a group to design the best type of electronic bandage. The groups research the topic and prepare a presentation to present to the other design teams and the Board of Directors at a bandage company to inform and persuade that their design solution is the best. Each group explains their design solution to other teams for feedback and critique. The students defend their solution as they present their findings to the class. Student success is assessed using criteria and a rubric. The teacher monitors, evaluates, and responds to student progress during and following the challenge. Another example includes "The Engineering and Design Challenge:" Saving Seaville's Species, in Chapter B.10(B) Factors Leading to Natural Selection, which provides students an opportunity to apply their knowledge and skills in a novel context. This design challenge project poses an environmental problem concerning endangerment of various species due to changes within the coastal ecosystem of a small town. Students take on the role of marine biologists who study the problem as it affects specific species. Students are encouraged to use what they have learned about natural selection, limited resources, and reproductive success to better analyze the issues organisms face. They also use their knowledge about how populations and ecosystems change due to changes in biotic and abiotic factors. After research, student teams design and present sustainable interventions and solutions to stabilize the community. A rubric is provided for scoring.
- In the materials, the "Interactivities" require students to apply their knowledge and skills to novel contexts. The "Interactivities" connect the content to real world examples where the students can make connections from what they are learning in the classroom to novel contexts and informally assess their understanding of the scientific content. For example, TEKS B.7D Applied Genetics features an interactivity on applied genetics. In the activity the student is trying to solve a crime using DNA fingerprinting from a strand of hair, thus tying the information they learned about applied genetics to a novel real-world example of how crimes are solved using DNA fingerprinting. The students first work through a DNA extraction and gel electrophoresis simulation. Based on crime scene samples and the suspect DNA, the students can then identify the culprit. The teacher monitors, evaluates, and responds to student progress during and following the simulation.
- "Quiz" Question 6 in Chapter B10(C) Natural Selection and Biological Diversity provides evidence of assessments that require students to apply what they have learned to a novel context. The prompt describes a scenario where males in one fiddler crab population successfully attract mates by waving a claw, while other populations utilize this behavior with only partial success. Students are asked to infer outcomes related to the differences in the results of the exhibited behavior. There is an image of a fiddler crab to provide a point of reference.
- The materials include assessments that require students to apply knowledge and skills to a new phenomenon or problem with the beginning of each unit providing a phenomenon for students to investigate, think, and create a problem-solving solution. For example, B.5B Prokaryotes, students observe prokaryotic cells and determine why and how these were the first cells using their academic vocabulary. In unit B.5C Homeostasis, students are shown a small video clip of a

cellular process, homeostasis, and are asked to elaborate on how the cell is maintaining homeostasis based on what they observe in the video.

EduSmart Science Biology

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 requirements for this indicator. Materials include guidance that explains how to analyze and respond to data from assessment tools.

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

Evidence includes but is not limited to:

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

- The materials include information and resources that provide guidance for evaluating student responses with a teacher guide for each unit activity. A "Teacher Guide" is available for each section of a chapter. For example, in B.5(B) Comparing Prokaryotic and Eukaryotic Cells, the "Teacher Guide" includes the TEKS standard, background information, prerequisite knowledge, common misconceptions, and essential questions. The information in this resource provides guidance for evaluation of student responses. For example, B.6(B) "Scope and Sequence" and the "Unit Teacher Guide" offer essential questions for each TEKS, exemplar answers and extra information that can be found in the "Teacher's Guide."
- Another example of how the materials do this is with the "Anchoring Phenomenon: for each of the TEKS. With each "Anchoring Phenomenon," there is a teacher document designed to provide guidance to teachers while evaluating student responses and conducting the anchoring phenomenon in class. The "Anchoring Phenomenon" teacher document provides the teacher with background information on the topic to assist them in evaluating student's discussion and responses. This is consistent throughout each of the units. For example, in unit B.5(A) Biomolecules the teacher resources are provided for the "Anchoring Phenomenon" with the fill-in-the-blank answers from a word bank. It also provides guidance on the graphic organizer and journal prompt suggested answers. The graphic organizer has a teacher answer guide for each

of the four main biomolecules structure, function, organic chemical composition and examples as a student exemplar.

- In the materials, the “Instructional Module Companion” found in the “Instruction” section, includes information that provides guidance for evaluating student responses. For each “Instructional Module": there is a correlating “Instructional Module Companion.” There is a teacher version that pairs with the student version. The teacher version provides the teacher with the correct answers for the note taking part of the “Companion,” the answers to the graphic organizer component, and an exemplar answer for the journal prompt. The teacher can use the teacher version of the” Instructional Module Companion” as a guide when evaluating student responses. For example, the “Instructional Module Companion” for B.13B Energy Flow in the Living World, the note taking guide provides Energy and Matter terms (ie. autotrophs, producers) that the student uses to complete fill-in-the-blank sentences. The teacher is provided with the correct answers for all sentences. Then the students complete a table identifying the trophic level of a food web graphic. The teacher is provided with the completed table to assess student responses. The module asks students to observe a graphic of a forest food chain and respond to a journal prompt. The teacher version provides the teacher with an example response to guide in evaluating student responses.
- The “Engineering Design Challenges” found in the materials, include information and/or resources that provide guidance for evaluating student responses. During the challenges students collaborate to present solutions to real world situations. For example, in the challenge The Good, The Bad, and The Ugly of Genome Editing Technologies, acting as genome editing teams, students conduct research on genome editing technology spiraling previous knowledge in DNA, protein synthesis, and gene expression. The students are tasked to create a presentation that the team can give to the planning and zoning committee with enough information so that the committee member can make an informed decision to allow the genome company to build in the community or not. Presentations are assessed based on student design analysis, a criteria specific rubric, and a product discussion where students explain the success of their design and what they would do differently. The rubric provides guidance for evaluating the student responses in the engineering design challenge as advanced, proficient, developing or beginning based on design, presentation, construction and results.
- Materials include information to help teachers evaluate responses in the “Teacher Version of Anchoring Phenomenon”–Prokaryotes located in Chapter B.5(B) Comparing Prokaryotic and Eukaryotic Cells. Students view a short video and describe observations, voice explanations, and ask questions. Teachers use questions from the guiding document to prompt discussion. Also included in the document is a description of what the students need to understand about prokaryotes and eukaryotes. There is additional content information explaining the basic concepts represented in the video.

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

- The materials support teachers' analysis of assessment data with guidance and direction to respond to individual students’ needs, in all areas of science, based on measures of student progress appropriate for the developmental level. The material provides a range of differentiation strategies and class grouping options to support teachers in responding to individual student needs in all areas of science, based on measures of student progress appropriate for the developmental level. They offer class grouping options that enable teachers

to group students based on their specific needs. Teachers can use these grouping options to ensure that students are working with peers who are at a similar level of understanding or who have similar needs. This can include grouping students based on readiness, interest, learning style, or other factors. EduSmart also provides small group instruction resources that enable teachers to work with students in smaller groups based on their specific needs. These resources include collaborative activities, inquiry-based investigations, and hands-on experiments that allow students to work together to deepen their understanding of science concepts. Teachers can use these resources to provide targeted support to students who require additional instruction or to challenge students who are working at an advanced level.

- In the materials, the "ELPS Strategies for Secondary Science" found in "Implementation Strategies of Teachers Resources," provides guidance and direction to teachers on how to effectively use their resources to support individual student needs. The strategies provided for each component of the resources provides rubrics for activities in listening, speaking, reading and writing based on student levels of beginner, intermediate, advanced and advanced high. By providing teachers with these strategies, the materials enable them to respond to individual student needs in all areas of science for all learners, based on measures of student progress appropriate for the developmental level.
- The EduSmart platform supports teachers' analysis of assessment data based on measures of student progress in "Reports for each Class." The material includes assignment, quiz and "StaarSmart" data and customizable reports for each class and student, detailing items like completion rate, score, attempts, question responses and progress tracking tools that enable teachers to identify areas where students may be struggling and provide targeted support. By providing teachers with data on student progress, the data and reports enable them to respond to individual student needs in a timely and effective manner. Materials support teacher analysis of data with guidance and direction based on student progress. Edusmart Reports is the primary data tool available within the platform. Data collected from student assessments and assignments is categorized in several different ways such as student grouping, by activity type, by content standard, by view, and by time spent on an assignment. Teachers can view where students rank developmentally and how any student performed on any one assignment.
- The Edusmart platform includes a tool that enables a teacher to create groups and subgroups for instructional purposes. Data informs the teacher about which assignments are made to groups and/or sub-groups depending on their developmental level, advancement in progress measures, or an indicated need for just-in-time support.
- The 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 development level. The teacher guidance begins with the "Teacher Implementation Strategies" provided within each unit for how to assess students based on reading levels, ELPS, writing levels and how to group students accordingly. For example, the "Implementation Strategies" for Unit B.5(A) Biomolecules Interactivities: Assign as a spiraling activity for early finishers, test review, and additional practice for retention and mastery. From here, teachers are given more guidance on assessment data under "My Groups." These sections should be set up by the teacher based on class schedules and have three main categories of assessing student data. One category of assessing student data is "Assignment Reports" that are meant to assess students on assignment completion, progress, and grading. The second category is "Quiz Reporting" for students who completed a group assigned quiz, individual quiz data, and student progress monitoring across all quizzes. The last category of student data is the "STAAR Smart Reports" that provide teacher guidance for STAAR item analysis, student

performance results from assessments that are directly aligned with STAAR Standards and progress monitoring reports throughout the school year.

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

- EduSmart's assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension. The detailed assessment reporting, progress monitoring, and quick reteach and test features can help teachers respond to individual student needs and ensure that all students are making progress towards their academic goals. EduSmart's assessment tools provide teachers with detailed information on student performance, including questions missed, number of minutes used, and student answer choices. This information can be used by teachers to identify individual student needs, track progress over time, and adjust instruction accordingly. EduSmart also provides progress monitoring tools that enable teachers to track student progress over time. This can include tracking student performance on specific skills or concepts, as well as tracking overall growth and development. By monitoring student progress, teachers can identify areas where students may be falling behind and provide targeted support to help them catch up.
- The EduSmart assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension in “Reports” found in each class. The data is presented in tables and color coded charts so teachers can easily analyze and interpret to support teachers in responding to data to inform instruction. The materials include assignments, quizzes, StaarSmart data, and customizable reports for each class and student. Reports detail items like completion rate, score, attempts, question responses, and progress tracking tools that enable teachers to identify areas where students may be struggling and provide targeted support. By providing teachers with data on student progress, the data and reports enable them to respond appropriately in a timely and effective manner.
- The EduSmart assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension. The “Staar Group Report” data provides teachers with customized progress reports by skill and by student, as well as by class and grade level. This allows for a personalized instructional plan. The data is categorized by unit tests, reporting category tests, and STAAR practice. STAAR Practice provides the average score and median data for the class, individual percentage, attempts, and growth. The “Detailed Individual Report” provides item and response data that enable teachers to identify areas where students may be struggling and provide targeted support. By providing teachers with data on student progress, the data and reports enable them to respond appropriately in a timely and effective manner.
- Data reports in the platform are varied and provide information from general to more granular perspectives. Edusmart reports include clickable tabs that teachers can access such as “Assignment Status, Group Assignment Report, Group Assessment Report, Student Assignment Report, Student Assessment Report, and Progress Monitoring Report.” Student data from these reports are useful for instruction, intervention, and extension. The assessment tools yield relevant information for teachers to use when planning instruction, intervention and extension suggest ways to make instructional decisions like how to group students by concepts that need to be retaught, reviewed, or are already mastered. These tools can be found within the “Teacher Unit Implementation Guide.” In Unit B.5(A), the materials suggest students work in small groups or individually based on their level of knowledge and skill. It suggests ways to utilize vocabulary to access prior knowledge. The materials also provide teacher guidance and relevant information for intervention by addressing common misconceptions within the

"Teacher Unit Guide." Ways to show how to access the students' prior knowledge and how to plan extensions with hands-on activities, essential questioning, and review materials are also provided.

- Digital interactives are used as a learning checkpoint or a review opportunity which informs a teacher about student learning progress. For instance, in Chapter B.5(C) Cellular Processes, there is an "Interactivity" titled B.5(C) Cell It! The interactive includes animations, content information, and questions based on accompanying images, animated depictions of processes, descriptive scenarios, etc. Students must answer correctly to move forward in the interactivity. The length of time a student takes, the number of life lines needed to get the right answer, and the total score are collected into a report that is accessed by the teacher.

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

- The materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data. One way it does this is by using the "Implementation Strategies Guide" found in "Teachers Resources." EduSmart's "Implementation Strategies Guide" provides teachers with guidance on how to use their resources to support student learning and respond to individual student needs based on data. The guide includes differentiated instruction strategies, small group instruction strategies, and targeted interventions that can be used to meet the needs of all students. For example, the guide suggests accelerated learners complete the "Reader" feature and interactive note booking for differentiation. The "Instructional Module Companion" and the "WordExplorer" can provide additional support for students.
- In the materials, the "ELPS Strategies for Secondary Science" found in "Implementation Strategies" of "Teachers Resources" provides a variety of resources and teacher guidance on how to leverage different activities to respond to student data. The guide suggests strategies such as conversation stems, think-pair-share activities, peer support, and interaction utilizing the resources in the materials. The strategies provide rubrics for activities in listening, speaking, reading and writing based on student levels of beginner, intermediate, advanced and advanced high. By providing teachers with these strategies, the teacher can respond to individual student needs.
- Teachers have access to "Implementation Strategies," a guiding document available in every chapter throughout the platform. All the components of the "Content Library" are also included in the document. Each instructional component includes descriptors of the characteristics and purpose of the activity, suggested strategies aligned to the activity, and an estimated time frame for experiencing the activity. Also, specific components are recommended for differentiated instruction and support for English Language Learners.
- Every chapter in the platform includes a reader as one of the instructional components of the "Content Library." For example, in Chapter B.10(C) Natural Selection And Biological Diversity, the "Reader" is titled B.10(C) Living Together Does Not Always Work. Included in the teacher view is information about reading levels of the article. In this instance, the level is "Approaching" and grade level is noted. This type of information provides guidance for teachers in response to student data.
- The materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data with the "Unit Teacher Implementation Strategies." The materials clearly outline what criteria of ELPS are addressed as resources within the units and how to maximize them with each type of learners such as special populations, accelerated

learners, and for deeper thinking questions. Materials provide direct instruction of science concepts followed by reviews that include vocabulary digital flashcards (which can also be printed), word sorts according to concept categories, and skills practice activities. Materials provide video clips for teachers to illustrate concepts that students struggle to understand. For example, Unit B.5(D) Virus, provides a digital interactive of the reproduction cycle of a virus. Each clip includes a follow-up assignment and journal prompt for student practice by asking them to recall the steps and break down the parts of the reproduction cycle.

EduSmart Science Biology

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 4/4

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.

- The materials contain items that are scientifically accurate, avoid bias, and are free from errors. Formative and summative assessments include assessment items that align with taught objectives and present course content and concepts, science and engineering practices, and recurring themes and concepts in a scientifically accurate way. EduSmart's quizzes found in “Assessments” contain items that are scientifically accurate, avoid bias and are free from errors. EduSmart's quizzes provide teachers with scientifically correct questions that address the standard that is being assessed. For example, for B.5D Viruses, students are presented with 10 questions pertaining to Viruses. The questions provide straightforward multiple choice questions in printable or online form, with tables and/or charts, that avoid bias and are free from errors.
- In the materials, the “Interactivity” found in “On-line Activities” contains items that are scientifically accurate, avoid bias and are free from errors. Formative and summative assessments include assessment items that present content and examples in a fair and impartial manner with no impact on student performance based on such factors as a student’s home language, place of origin, gender, or race and ethnicity. The “Interactivity” can be used as a formative assessment and is presented to the students with content related questions as they practice the content in a simulation platform. These questions are scientifically accurate and are straightforward. For example, The Interactivity Identify and Classify in Chapter B.5(B) Comparing Prokaryotic and Eukaryotic Cells, is a digital assessment where students identify and classify cells as either prokaryotic or eukaryotic. There are seven samples of different organisms and a simulated electron microscope on the screen. The student is prompted to drag and drop

one sample at a time onto the staging area of the microscope and view the image. After identification, the student moves the sample into the correct column. The audio prompt confirms the correct or incorrect student response. Students who make an incorrect choice are allowed to correct it, but the score reflects the mistake. Everything is accurate and free of bias.

- The Edusmart platform includes a practice Biology STAAR EOC assessment for students. The digital test includes 45 questions. The questions are scientifically accurate, without bias, and free from errors. When the student clicks “Check Answer,” the confirmation for correctness is available.
- The materials contain assessments that are scientifically accurate, avoid bias, and are free from errors for students and educators. Formative and summative assessments include assessment items that align with taught objectives and present course content and concepts, science and engineering practices, and recurring themes and concepts in a scientifically accurate way. For example, Unit B.9(A) Evidence of Common Ancestry provides a fill-in-the-blank “IM Companion'' that includes content that supports only scientific facts, not of religion or spiritual explanation, and pertains to the information previously taught in the B.7 and B.8 Genetics units prior to Biological Evolution.
- The materials contain scientifically accurate assessment items, avoid bias, and are free from errors because the questions align with the learning objectives and TEKS. For example, in B.7 Evidence of Common Ancestry, one of the questions asks students, “Darwin's finches from his studies on the Galapagos Islands are some of the most famous examples of evolution in action. Which of the following best explains why these finches have beaks of different sizes and shapes?” The answer choices are images that depict various types of beaks of finches along with their location and food source. The answer choices are clear and concise and come from the fill-in-the-blank “IM Companion.” In B.9(B) Fossils and Evolution Quiz, students are asked, “It appears to scientists that fishes in the shark and ray families have not evolved over millions of years. Which of the following would be the most likely explanation for the lack of change?” The answer choices are clear and concise with scientific reasoning and facts that are free from errors and avoid bias.

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

- In the materials, EduSmart quizzes found in assessments use clear pictures and graphics that are developmentally appropriate and course appropriate with enough detail of science content but without excessive detail that would alarm or overwhelm high school students. EduSmart's quizzes feature pictures that are in color and large enough to be able to be seen clearly. For example, B.5(A) Biomolecules, the quiz features images of biomolecules and charts to fit the needs of the question. These graphics are clear and appropriate for the course.
- In the materials, “Interactivities” found in “On-line Activities,” use clear pictures and graphics that are developmentally and course appropriate. For example, for B.7C, students apply their understanding of the different types of mutations to identify the type of mutation shown on the slide. The illustrations allow students to clearly see what occurs in each process of the mutation to select the correct answer. The graphics are appropriate for the age level and the course.
- There are clear images and graphics within assessment tools. For example, the “Interactivity” in Chapter B.6(C) Disruptions in The Cell Cycle includes six different graphics representing the steps leading to the development of lung cancer. Students are asked to drag and drop the images into sequenced rectangular frames and arrows. Students can review their score after they have completed the assessment. They have the option to replay the activity to improve their results.

- The "Quiz" in Chapter B.5(B) Comparing Prokaryotic and Eukaryotic Cells provides evidence of developmentally appropriate and clear pictures and graphics. For example, question 4 includes a graphic of a cyanobacteria and moss cell supporting the question stem concerning photosynthesis. Other questions such as question 6 include a branching diagram to represent classification of organisms and question 10 contains a Venn diagram representing comparisons between prokaryotes and eukaryotes. All images are clear and developmentally appropriate.
- The materials contain assessment tools that use clear pictures and graphics that are developmentally appropriate for students to understand the molecular structures of cells, viruses, and other microscopic species. For example, Unit B.5(D) Viruses includes images and graphics that are accurately displayed to explain the structure of viruses and compare their structure to prokaryotic and eukaryotic cells. The materials contain assessment tools that use clear pictures and graphics that are developmentally appropriate for students to understand the molecular structure and function of the cell membrane/plasma membrane/phospholipid bilayer in B.5(C) Cellular Processes. The video instructional modules have distraction-free images and graphics that are developmentally appropriate because it focuses on the main structures of the cell and the processes that will be tested on the Biology STAAR EOC.

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

- In the materials, the "Implementation Strategies" guide found in "Teachers Resources" provides guidance to ensure consistent and accurate administration of assessment tools. The guide supports the teacher in understanding the types of informal and formal assessment tools included in the curriculum. For example, the "Implementation Strategies" supports teachers with guidance on administering the Edusmart "Quizzes" suggesting the STAAR formatted questions can be assigned virtually, as a whole group, or printed.
- The "Engineering Design Challenges" found in the materials, provide guidance to ensure consistent and accurate administration of assessment tools. The challenges include detailed information that supports the teacher's understanding of assessment tools and their scoring procedures. During the challenges students collaborate to present solutions to real world situations. For example, in the challenge The Good, The Bad, and The Ugly of Genome Editing Technologies, acting as genome editing teams, students conduct research on genome editing technology spiraling previous knowledge in DNA, protein synthesis, and gene expression. The students are tasked to create a presentation. Presentations are assessed based on student design analysis, a criteria specific rubric, and a product discussion where students explain the success of their design and what they would do differently. The rubric provides guidance for evaluating the student responses in the engineering design challenge as advanced, proficient, developing or beginning based on design, presentation, construction, and results.
- The primary guiding document for administration of assessments is "Implementation Strategies" located in the "Teacher Resources" section in every chapter. The document suggests ways to use platform components for assessment purposes. For example, "Journal" entries are recommended for exit tickets or quick writes. The "Instruction Module Companion" is useful to assess student comprehension of content. The "Quiz" section describes various ways to disseminate the quiz such as whole-group, printed, or virtually to one or more students. Information about the assessment in "Readers" describes the three types of comprehension questions that are also aligned to include both science and ELA TEKS.
- The materials provide guidance to ensure consistent and accurate administration of assessment tools by providing an assessment guide or a distinct section in the "Teacher's Guide" that supports the teacher in understanding the types of informal assessment tools included in the

curriculum, with the TEKS, background knowledge, misconceptions, essential questions and answers to all essential questions and common misconceptions.

- The materials provide guidance to ensure consistent and accurate administration of assessment tools with the “Implementation Guide” for teachers. The “Implementation Guide” provides anecdotal note-taking forms that support the teacher in collecting consistent and purposeful data. The material also provided in the “Implementation Guide” supports teachers on how the unit for each TEKS incorporates formal and informal assessments that are separated by sections titles such as “Instructional Activities, Interactivites, Word Explorer, Science Investigation Activities, Quizzes” and more. The materials also provide “Teacher Versions” for grading and scoring all activities within the unit.

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

- In the materials, the “Reader” feature found in the “Vocabulary and Literacy” section of each category standard includes guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals. The “Reader” includes a text-to-speech option where students can adjust the voice and speed of the reader. Students are also able to adjust font size, enlarge images, change image color and change the background color of the reader. This allows for students to utilize their accommodations to demonstrate mastery of skills by using the reader and the 5-question probe.
- Chapter quizzes offer accommodations that allow students to demonstrate mastery of knowledge and skills. For example, the Interdependence Among Organisms Quiz, located in Chapter B.13(A) Interdependence Among Organisms, includes features such as text-to-speech capabilities and highlighted text as the text is read. There are speed and volume controls and options to stop, pause, fast forward, or rewind. Both the question stems and answer choices include the same features.
- The “Implementation Strategies” in the “Teacher Resources" includes additional support in a document titled “ELPS Strategies.” Each instructional component such as “Anchoring Phenomenon, Instructional Module and Instructional Module Companion, Readers, and Hands-On Activities and Labs” describe accommodations for each ELL level and each activity. In addition there are further recommendations of strategies a teacher can implement as accommodations for assessments.
- The materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals with the “Teacher Implementation Guide” and built-in features. The guide offers guidance for teachers to extract prior knowledge from students, correct misconceptions, and build current accurate knowledge for students to push their knowledge to mastery with the activities for each unit. The “Implementation Guide” offers teachers guidance on how to incorporate reading, writing, and speaking in academic language within the classroom. For example, materials provide a text-to-speech feature on the web-based assessment platform, allowing students to hover over the text using a speech symbol cursor and converting it into a digital text read aloud. The digital interactivities highlight key words, when the cursor rolls over items that are interactive it also outlines the image to easily interact with the digital materials. Video clips use a closed-captioning feature to help all students see and hear scientific vocabulary in context.

EduSmart Science Biology

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 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 still need to achieve mastery. Materials offer 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 mastery.

- In the materials, the “Interactivity" component found in “On-line Activities” provides targeted instruction and activities to scaffold learning for students who have not yet achieved mastery by leading students through a review of the scientific concepts. Materials provide students with information and explanations for correct answers. Teachers can use these interactivities in small group intervention or individual student practice. The “Interactivity” for B.10D, What's the Mechanism, asks students to observe graphics representing different evolutionary mechanisms and identify the relevant evolutionary mechanisms associated with each image. They then select the evolutionary process of gene flow, mutation, and genetic drift through graphics with correct answers and explanations.
- In the materials, the “Implementation Strategies” guide found in “Teachers Resources” offers suggestions on using the different activities found in each unit of the materials to re-teach and reinforce learning for those students who have not yet achieved mastery. Additional support for students can be found in the “Readers, Instruction Module Companions, WordExplorer, and Science Investigation Activities” to help students master the concepts. For example, the “Instruction Module Companion” for B.6A Cell Cycle includes a vocabulary activity, a graphic organizer activity, and a journal prompt that students complete to build on the concepts of the cell cycle.
- In the “Interactivity,” Biomolecules on My Table, located in Unit B.5(A) Biomolecules, students can review the concepts of biomolecules that are a part of daily foods. The activity is brief, and the resources provide answers after two attempts for each type of food represented. An additional feature allows students to improve their scores through continued attempts, thereby

supporting connections with real-world applications and retention of concepts that may seem abstract. Teachers can assign the "Interactive" for small group or individual instruction.

- "Teacher Resources," available in each unit of every chapter, include an "Implementation Strategies" document that explains the purpose and use of resources within the platform. Additionally, teachers get strategies to support struggling learners through differentiation and scaffolding. For example, the "Instruction Modules" include instructional videos that teachers can use for whole, small, or individual groups. Multiple breaks in the video facilitate various discussion strategies. The "Instruction Module Companion" provides fill-in-the-blank notes to differentiate or modify to meet learner needs and a graphic organizer to assign individually or for small group discussion.
- The materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved mastery within each unit found within the "Teacher Implementation Strategies." In Unit 9(B) Fossils & Evolution, the "Implementation Strategies" lists "Module Comparisons" that have scaffolding for all learners. The materials provide skeleton notes, like fill-in-the-blank, that follow along with the "IM Video." Materials also provide numbered sentences for maintenance organization and chunking questions for students for accommodations. The materials also suggest modifying resources to create more "white space" for students needing clearly defined and fewer questions. Students who have not yet achieved mastery have teacher recommendations to implement vocabulary drills and highlighting practices.

Materials provide enrichment activities for all levels of learners.

- In the materials, the "Interactivity" component found in "On-line Activities" for various units provides interactive online enrichment activities for all levels of learners. Resources provide students with immediate feedback, information, and explanations for correct answers. For example, in B.5D Viruses, the "Interactivity" The Virus Attack, students use prior knowledge about DNA and cells to complete a diagram representing the lytic reproductive cycle of a virus to test their understanding of the different stages, how a virus infects a cell, and how it relates to illness in humans.
- In the materials, the "Implementation Strategies" guide found in "Teachers Resources" offers suggestions on using the different activities found in each unit of the materials to provide enrichment activities for all levels of learners. Enrichment activities can be found in the "Readers, Instruction Module Companions, WordExplorer, and Science Investigation Activities" to meet the learning needs of all students. For example, the "Instruction Module Companion" for B.6A Cell Cycle includes a vocabulary activity, a graphic organizer activity, and a journal prompt that students complete to reinforce and build on their understanding of the concepts of the cell cycle.
- Each unit has a "Reader," which provides enrichment regarding the unit concept. For example, in Unit B.5(A) Biomolecules, a "Reader" titled Combination Biomolecules, provides a summary of the article, the reading level of the text, options for sharing and assigning, and access to a printable document. The article describes different biomolecules, such as glycoproteins and glycolipids, with sugars attached to the biomolecule. These biomolecules have many different functions than the ones previously studied in the chapter. For instance, one glycoprotein provides an anti-freeze function in fish blood in freezing waters. Another glycoprotein stabilizes collagen within our bodies. Other glycoproteins and glycolipids support the function of the cell's plasma membrane. Materials cite two references for students wanting to dig deeper and a 5-question check for understanding opportunity.

- The “Interactivity” component in each unit supports enrichment for all students. The “Interactivity” titled What’s the Mechanism? is located in Unit B.10(D) Evolutionary Mechanisms. The final unit in Chapter B.10, Biological Evolution, focuses on multiple aspects of natural selection. The interactive provides a gamified experience for students to click through, skip, review previous screens, or pause as needed. Text and voice prompts ensure clear explanations and descriptions of concepts and efficient navigation through the interactive.
- The materials provide enrichment activities for all levels of learners with differentiated instruction within the units with guided video notes for students to complete. For example, the “WordExplorer” incorporates multiple parts and, depending on the learner, can utilize the differentiation to work towards mastery of the unit. The materials contain visual literacy practice using images to comprehend vocabulary and unit concepts. Students can demonstrate mastery of the unit through CLOZE activities that provide text-to-speech features, drag-and-drop options, and open-response questions.

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

- The “Hands-on Activities” materials provide support and resources for students ready to explore and accelerate their learning through science and engineering practices (SEPs). Students plan and implement descriptive, comparative, or experimental investigations to design solutions to real-world problems. In “Hands-on Activity” B.13 A, Attack of the Killer Plants, students work in groups and as a class to perform an experimental investigation concerning the factors that affect the distribution of plants, specifically allelopathy. Students read background information and an introduction, formulate a written hypothesis and response to questions, analyze a distribution map, conduct the experiment, adhere to lab safety, and observe and record data in a table and scatter plot to bring them to a valid conclusion. Students extend their learning through reflection questions and research.
- In the “Teacher's Guide” for each unit subcategory, “Essential Questions” provide scaffolds and questions for the teacher to support students to develop productive perseverance in learning at the moment. For example, for B.8A: Meiosis, the following “Essential Questions" are provided for the teacher to support students to maintain engagement during the lessons and activities for the unit: 1) What is meiosis and how is it different from mitosis? 2) What is the difference between haploid and diploid cells? Describe the process of chromosome reduction during meiosis, and 3) What is crossing over and how does it contribute to genetic recombination during meiosis?
- The publisher’s platform offers multiple ways for teachers to differentiate instruction for diverse learners. Evidence of this is observable within each unit in each chapter. Teachers can create playlists of learning components to scaffold and accelerate learning. Teachers can select specific activities to use as assignments for students ready for enrichment or extensions. For example, once students understand concepts associated with viruses, teachers can assign an article from BBC about a swine flu breakout in a town in England. This type of scaffolding allows students to apply what they learn to real-world examples. The activity is located in Unit B.5(D) Viruses Making the News. Resources provide checkpoints to evaluate learners’ mastery throughout and summative unit quizzes which give teachers data to drive instruction.
- Documents and resources to guide teachers as they create just-in-time acceleration opportunities are available within “Teacher Resources.” The “Scope and Sequence” document contains essential questions that provide an instructional focus and drive critical thinking. Each unit specifies the science and engineering process TEKS. Vocabulary development is supported within the document and organized by unit. Materials contain types of instructional activities for

each unit. “Implementation Strategies” in “Teacher Resources” offers a variety of suggestions to scaffold for just-in-time-acceleration. The materials include different ways to use the “Instruction Module Companion,” the science investigation activities, inquiry-based investigations designed by students, and “Readers” to support connections to real-world phenomena.

- The materials provide enrichment activities for all levels of learners with differentiated instruction within the units with guided video notes for students to complete. For example, the “WordExplorer” incorporates multiple parts and, depending on the learner, can utilize the differentiation to work towards mastery of the unit. The materials contain visual literacy practice using images to comprehend vocabulary and unit concepts. Students can demonstrate mastery of the unit in multiple ways through either CLOZE activities that provide text-to-speech features, drag-and-drop options, and open-response questions.

EduSmart Science Biology

Indicator 7.2

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

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

Meets | Score 2/2

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

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. Materials consistently support flexible grouping (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.

- In the materials, the “Engineering Design Challenges” provided in the “Content Library” engage the students in collaborative learning activities to present a solution to an actual world situation. For example, students research genome editing technology using previous knowledge in DNA, protein synthesis, and gene expression in the challenge The Good, The Bad, and The Ugly of Genome Editing Technologies. The students work in teams to prepare a thorough presentation for a committee on the technology. The presentation criteria include a general discussion of genetic engineering, a history of the technology, how gene editing works, and the benefits and possible adverse outcomes. Each group will discuss improving their presentations if the criteria were not met.
- Each unit provides a “Reader” component in the “Vocabulary and Literacy” section that engages students in mastery of the content through various developmentally appropriate instructional approaches. For example, in B.6B Cell Differentiation, the “Reader” titled Cell Specialization, students read an explanation of how specialized cells develop in plants and animals. Students observe and analyze various graphics and photos included in the reading to further develop an

understanding of the concepts. Students answer a multiple choice comprehension check to check for understanding. Students provide a written response to the following question prompt: How does an embryo's exposure to toxic chemicals impact differentiation?

- Each chapter unit has various appropriate instructional activities to aid students in mastery of content. For example, In Unit B.5(C) Cellular Processes, students are introduced to cell transport by viewing a brief video of molecules moving through a cell membrane. Guiding questions support student observations, critical thinking, and questioning. Students then engage in a digital interactivity that exposes them to the various specialized types of transport, thus taking a deeper dive into the content. Students then investigate diffusion and osmosis through two hands-on laboratory investigations. Materials provide a note-taking guide to assist students as they experience an instructional interactive that provides content explanations through text, images, and brief animations. The note-taking guide includes a word bank with fill-in-the-blank sentences, graphic organizers, and a journal prompt to facilitate mastery of the content further.
- "Implementation Strategies" is a primary guiding document in "Teacher Resources" in every chapter unit. The document explains each instructional component's purpose, characteristics, and possible implementation strategies within the LMS platform. Also included are ways to use the instructional parts to differentiate instruction for acceleration, scaffolding, spiraling, review, and literacy development for all students.
- The unit materials provide a variety of developmentally appropriate instructional materials to engage students. Each learning module includes guided/numbered lecture notes with videos and interactives. For example, in B.11 (A) Photosynthesis and Cellular Respiration, students label a diagram with the reactants and products for the process and interpret how both are related to one another. In B.11(B) Enzymes, students collaborate in small groups to plan an experiment on the effects of temperature on enzymes. For both subunits, students are provided with resources to encourage mastery with practice, student collaboration, vocabulary builders, and unit assessments that they can continue to practice for mastery.

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

- In the materials, the "Implementation Guide" found in "Teacher Resources" provides suggestions to support a variety of instructional groupings while utilizing the various resources throughout the unit categories. For example, in the "Anchoring Phenomena" component, it is recommended that the teachers discuss the phenomena in small groups or pairs before whole group discussion to assist ELL students or those needing more time. For the "Instruction Modules," the guide recommends whole group instruction or individual if assigned virtually.
- In the materials, the "Implementation Guide" found in "Teacher Resources" offers "Suggested Station Activities" for small groups or partners to support flexible grouping based on learning needs. The students rotate through 5 stations performing the activities of the various components of the resources like the "Interactivity, Reader, and Instruction Module Companion."
- The LMS allows teachers to form groups and subgroups within each class or by assignment. Groups are created digitally by adding two or more students and then saving each group. There are options to add students, create subgroups, remove a student, and print labels to save login information.
- Teachers can create playlists and make assignments available to individuals, pairs, small groups, etc. For example, in Unit B.5(B) Comparing Prokaryotic and Eukaryotic Cells: "Interactivity–The Endosymbiotic Theory," the teacher can add the activity to a "Playlist" by clicking the icon and

then on the “Assign” button to assign the activity to individuals or groups of students. Each instructional or lesson component within the LMS includes these features.

- The materials consistently support flexible grouping throughout the units. For example, in B.11(A) Photosynthesis and Cellular Respiration and B.11(B) Role of Enzymes, teachers are offered multiple opportunities for student grouping, pairing, and individualized assignments, including the assessment quizzes. Within the teacher's “Implementation Guide,” the teacher can present the anchoring phenomenon: one-on-one, small group, or whole group instruction. The ELPS for each unit also consistently support teachers with specific student groups based on their reading, listening, speaking, and writing level. The students can also view opportunities for grouping with the “Student Interactives” and the “Reader and Journal Writing.” Studies have proven the benefits of students working collaboratively; this indicator meets these standards. There is teacher support on grouping students and suggested grouping available.

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

- In the materials, the “Hands-on Activities” found throughout the resources include opportunities for students to engage in collaborative learning structures while learning a new concept. For example, in B.1-4 Science and Engineering practices, during the “Activity” titled Science Safety Scenarios, students use the information provided and the concepts learned about science safety to work with a partner. Materials instruct students to read a Safety Scenario Card, discuss the scenario, and present the information to the class.
- In the materials, the “Implementation Guide” in “Teacher Resources” provides guidance and structures to achieve effective implementation supporting multiple types of practices while utilizing the various resources throughout the unit categories. In the “Implementation Guide,” there are suggestions for implementing the different components of the materials. For example, the guides offer pacing tips, grouping, discussion opportunities, and note-taking when implementing the “Instruction Modules.”
- Multiple instructional practices are supported throughout the LMS as evidenced by “Implementation Strategies,” a primary guiding document in “Teacher Resources.” For example, “Anchoring Phenomenon” is an opportunity to use questioning strategies to drive discussion and connect to prior knowledge. “Instruction Modules” can be assigned as a collaborative activity where pairs or small groups can work together to process the content and discuss the concepts. “Science Investigation Activities” are simulations of actual labs that provide a model for science and engineering processes before hands-on lab investigations performed by students.
- Three specific instructional activities within “Implementation Strategies” best support the development of science literacy through independent practice. “WordExplorer” provides a 3-part gamified activity to use as a computer station activity or as individual practice. “Journal Prompt” is an open-ended comprehension check used as an exit ticket or a quick write. “Readers” are non-fiction texts used as enrichment or extensions of the context of the concepts. Included with every “Reader” is a short 5-question comprehension checkpoint.
- The materials consistently support multiple types of practices for students with video lessons and guided notes to the lessons in units B.11(A) Photosynthesis and Cellular Respiration and B.11(B) Role of Enzymes. The units offer opportunities for collaboration and independent practice to provide guidance and structures to implement the modules effectively. The units also have academic vocabulary builders, interactive online activities, hands-on with creating graphic organizers, KWL charts, lists and charts, and more for the students to practice. These supports

help the teacher even if the teacher is new to the classroom with no experience. The user-friendly materials and zero preparation activities allow the teacher to spend more time on practice and implementation instead of setting up student practice opportunities.

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

- The “Hands-on Activity” for B.4B, Rosalind Franklin- The Researcher HIS-tory Forgot, introduces students to Rosalind Franklin, who is now considered one of the most influential scientists of the 20th century. Through this activity, students work collaboratively to research the events that led to the exclusion of Rosalind Franklin from the Nobel Prize and create a cost-benefit analysis of including Rosalind Franklin in the Nobel Prize. The “Home Connection in STEM Careers" activity encourages students to work with an adult to research other examples of scientists overlooked due to race, gender, religion, or ethnicity.
- In the materials, various “Instructional Modules” represent a diversity of communities in the images and information about people and places. Characters within the “Instructional Modules” are designed to represent gender diversity. For example, B.1-4: Science and Engineering Practices modules use male and female characters in the videos.
- The instructional components in Unit B.13(D) Ecological Balance provide evidence of diversity within communities in various ways. The “Anchoring Phenomenon” is a video of a forest fire where students discuss their observations and inferences about changes in the ecosystem. The “Interactivity” allows students to analyze the possible environmental effects of building three different types of water management facilities along a river and saltwater bay. The following “Activity,” Gaia Hypothesis–Impact of Scientific Research, is a student research assignment exploring the contributions of Dr. James Lovelock and Dr. Dian Hitchcock, who worked for NASA in the 1960s. The second “Activity,” Mapping Environmental Change, requires students to track changes in monarch butterfly migration using charts with sighting locations and dates and colored maps of the United States displaying temperature variations over time. The “Instructional Module” on Ecological Balance provides content students can click through to learn additional information presented through pictures, graphics, animations, and text. The materials include checkpoints for understanding after each main concept.
- B.5(B) The History of Biology is one such assignment that represents diversity through the perspective of history. Students are to research biology's history and scientists' contributions from the early 1800s. The product must include a chronological timeline of scientists and their contributions. The materials offer various presentation formats, such as digital posters, PowerPoint, video, or other presentation software options.

EduSmart Science Biology

Indicator 7.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials include guidance for linguistic accommodations commensurate with various levels of English language proficiency as defined by the ELPs. In "Implementation Strategies," under "Teacher Resources," you will find the ELPs strategies document, which gives the instructor different examples of strategies they can implement for all the various learning activities provided by the materials. The materials are similar from unit to unit, but the strategies are meaningful and sufficient to support all learners. The "Teacher Implementation" materials also provide a separate section for ELPS support for teachers and students.
- The "ELPs Strategies for Secondary Science" guide, found in "Teacher's Resources Implementation Strategies," provides the teacher with guidance when using the various components of the resources with students of varying levels of English language proficiency. The guide suggests accommodating the ELLs when listening, speaking, reading, and writing. For example, the materials provide sentence stems and frames to help students generate questions. Other sentence stems and frames are available for experiences such as investigations, hands-on experiments, and discussion while analyzing results. The authors organized each sentence stem set using ELPS proficiency levels.
- In the materials, the "Instruction Module Companion," found in each unit category "Instruction" section, suggests using graphic organizers to classify information. For example, for Unit B.5, Comparing Prokaryotic and Eukaryotic Cells, the "Instruction Module Companion" has the students complete a table identifying the types of cells where they can find the various listed cell parts—the "Anchoring Phenomenon" lesson feature lists specific strategies for listening and

speaking. The materials arrange the list in a chart organized by proficiency level. There are additional suggested instructional strategies listed below the chart. Other lesson components like “Instructional Module” or “Readers” include similar charts and additional strategies.

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

- The materials encourage strategic use of the student's first language as a means to linguistic, affective, cognitive, and academic development in English. The “ELPs Strategies for Secondary Science” guide in “Teacher's Resources Implementation Strategies” suggests using the student’s first language for linguistic, affective, cognitive, and academic development in English. The “Anchoring Phenomenon” activity provides an excellent opportunity to use a student’s first language strategically. The activity aims to place students in a position to observe, make connections to prior knowledge or experience, express thoughts and explanations, and discuss possible inferences. The videos are brief and play without sound, making dialogue the primary focus. Teachers are reminded not to provide information about the phenomenon but to encourage additional questioning and discussion. Allowing students to engage in the activity in their first language will enable students to participate in science with a lower affective filter.
- The “ELPs Strategies for Secondary Science” guide offers teacher guidance when using the various components of the resources with students of varying levels of English language proficiency. The guide suggests accommodating the ELLs when listening, speaking, reading, and writing. For example, the “Instructional Module” and “Instructional Module Companion” suggest beginner-level ELL students can use peer-to-peer native language support, sentence stems, and single words for conversation. The materials include instructional supports such as Think-Pair-Share, word banks, conversation sentence stems in their native language, and written supports such as Venn diagrams and KWL charts. Each strategy supports listening, speaking, reading, and writing accommodations. Other recommended strategies include pre-teaching vocabulary, the allowable use of native language, and editing of the “Instructional Module Companion” to provide linguistic support.

EduSmart Science Biology

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 requirements 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.

- The materials provide information to be shared with students and caregivers about the design of the program within the platform under the “Help” tab. For example, by clicking Help in the Help Tab and then clicking on Proclamation 2024, you will find the link to How To Navigate EduSmart Science. This document is a guide for Students and Parents on how to navigate the program.
- A Letter to Caregivers found in the “Help” section provides information to be shared with students and caregivers about the design of the program. Teachers can send the letter home with their students. This caregiver letter explains the design of EduSmart, how teachers can use it in the classroom, and how caregivers can use it at home to reinforce a student's learning. Teachers can send the general letter to guardians and edit it for students to introduce the learning platform. The letter helps explain the course's design, the platform's instructional features, the performance tracking feature, and what students require for working from home, such as Wi-Fi and a computer.

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

- The materials provide information to be shared with caregivers for how they can help reinforce student learning and development. The “Letter to Caregivers” found in the “Help” section provides information about the current unit of study, the student log-in, and instructions for

accessing the student platform. It also offers possible conversation starters that can help reinforce what the student has learned at school while involving the caregiver. The premade letter outlines the platform, intended to present learning engagingly and interactively, how the caregivers can be involved, and a message to the student to maximize utilization.

- The scientific and engineering practices' hands-on activities feature a “Home Connection” to help caregivers reinforce what the student has learned at school. For example, in the “Hands-on Activity” for TEKS B.4(B), The Ethics of Animal Experimentation encourages students to share with caregivers their research and findings about product testing on animals. Materials instruct students to talk with their caregivers about their research and conclusions. The student and caregiver are encouraged to research a household or beauty product to determine their stance on animal testing.

Materials include information to guide teacher communications with caregivers.

- The materials include information to guide teacher communications with caregivers. The materials contain information to guide teacher communication with caregivers throughout a student's learning process with the LMS, and it provides scripts, reports, and various ways to communicate with students. The communication guide suggests how to proceed correctly using four methods of communication, including progress reports, parent access to the platform, student portfolios, and a classroom newsletter.

In the materials, a “Teacher Communication Guide” found in the “Help” section includes information to guide teacher communication with caregivers. This document provides specific examples teachers can use to communicate with caregivers regarding their students' progress in the Science content. For instance, caregivers can download progress reports from the dashboard to share student academic progress. Teachers can provide parent access to their child’s platform to engage in instructional modules and activities. Teachers can create a student portfolio using work samples from engineering design challenges, data sheets, and assessments. Teachers can use classroom letters to inform caregivers about what is happening in the classroom.

EduSmart Science Biology

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 and scientific and engineering practices.	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 into the course materials. Materials provide clear guidance for facilitating student-made connections across core concepts and scientific and engineering practices. Materials also 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 into the course materials.

- Materials are accompanied by a TEKS-aligned Scope and Sequence that outlines the skills and knowledge taught. Within section B.5(A), “Biomolecules,” in the “Teacher Resource” under “Scope and Sequence,” the suggested number of days per TEKS are listed to ensure that all grade-level-appropriate TEKS are taught within the scope of the school year.
- The materials provide the teacher with a 5E filter with an order of events for each of the activities. This sequence allows for the knowledge and skills to be taught and built upon in an order that is gradually released to the students. Teachers can toggle to the 5E filter by clicking the 5E button at the top right of the content screen.
- The materials provide a Scope and Sequence table in “Teacher Resources.” The document provides a detailed table listing the order a unit topic is taught and provides the specific TEKS for that unit. The materials also provide essential questions to stimulate critical thinking.
- Course materials are available and accessed through either a “Resource Type” filter or a “5E Model” filter. There are varying levels of content access.
- Materials are accompanied by a TEKS-aligned Scope and Sequence with labels titled “B.1 to B.4” that are found in the course materials “Implementation Strategies.” These strategies and others are found in each topic on the teacher dashboard.
- The materials are user-friendly, color-coded, and ready to print. They allow for teacher, student, and group work support.

EduSmart Science Biology

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

- EduSmart provides the teacher with clear guidance for facilitating the student-made connections across core concepts and scientific and engineering practices (SEPs). For example, the Teacher Resources provides a link to "Implementation Strategies, ELPS Strategies, Vertical Alignment, and Scope and Sequence." This allows the teacher to use and make connections across the core concepts.
- The Vertical Alignment document provides teachers with the knowledge of the core concepts, SEPs, and recurring themes and concepts (RTCs). It also includes TEKS that are taught to the previous grade levels and in the current grade level. This allows teachers to build on students' previous knowledge while preparing them for current content. One example of the Vertical Alignment document providing teacher clarity is in the unit covering TEKS B.5(B). The document allows the teacher to see the prior knowledge the students learned in grades 6 and 8, and is aligned with the current TEKS.
- In the Unit Teacher Guide in Teacher Resources, teachers can use the essential questions provided to engage students. For example, in Unit B.6(A), "Cell Cycle," the essential question "What is the cell cycle, and why is it important for the growth and development of organisms?" is provided with a sample response for the teacher to facilitate the students to connect organism development and genetics.
- The materials provide an Instruction Module for the teacher to use to connect core concepts. For example, in Unit B.9(A), "Evidence of Common Ancestry," a video is provided to show how genetics and skeletal structures are used as evidence for evolution.
- Evidence for teacher guidance is found in the Teacher Resources section of each lesson. For example, the Unit Teacher Guide provides the TEKS focus, background information, prerequisite knowledge, common misconceptions, and essential questions.
- Teacher Resources also include implementation strategies and vertical alignment information.
- Materials provide clear teacher guidance with teacher "do" instructions and have multiple opportunities for cross-curricular ELAR through guided writing and reading exercises.
- The materials make strong and clear connections for all learners for cross-curricular opportunities. Each section is supported with strategies for differentiation and support for emergent bilingual (EB) students by specifically indicating what will be completed by both the teacher and the student.

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

- The materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention. For example, each unit contains "Online Activities, Hands-On Activities, Assessments, and Vocabulary" that the teacher can use to spiral knowledge and support retention. In the hands-on activities for Unit B.9(A), "Evidence of Common Ancestry" under section B.9, "Biological Evolution," the "Hypothesis vs. Theory Activity" allows teachers the opportunity to spiral the concept of distinguishing between a theory, a law, and a hypothesis.
- The materials allow for retention and mastery of knowledge and skills. For example, the materials provide a "STAAR EOC Biology Practice Test" as well as "STAAR-formatted Quizzes" in each content unit. The "STAAR EOC Biology Practice Assessment for Biology" allows students to

review and practice knowledge and skills that are spiraled throughout the year. The "STAAR-formatted Quizzes" allow for retention checks and help with mastery of knowledge and skills.

- The materials provide both an Instruction Module and a companion that the teacher provides to the students. For example, in Unit B.13(D), "Ecological Balance," the teacher presents a video, and students follow along with a handout to check for understanding.
- The materials provide a Hands-on Activities section for each core topic aligned to the TEKS. For example, in Unit B.11(B), "Enzymes," the teacher guides students through an enzyme experiment.
- In the 5E Lesson Model tab, the "Resources, Instructional Modules, Digital Interactions, Vocabulary and Literacy Development Activities" are easily accessible for students within each lesson.
- There is some evidence for investigations through digital interactions, such as in Unit B.10(A), "Organisms and Natural Selection-Modeling Bacterial Drug Resistance." There is little evidence of opportunities for hands-on investigations or design opportunities.
- Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention by specifically stating how the materials can be used and where to find them. They are clear and concise. Materials provide students with Interactivities, Modules, and a Word Explorer that is embedded in the unit topics on the learning management system (LMS).

EduSmart Science Biology

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

1	Materials provide teacher guidance and recommendations for the 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 course.	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 course-appropriate use of safety equipment during investigations.	M

Meets | Score 2/2

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

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

- Materials that provide teacher guidance and recommendations are available throughout the digital biology platform with all content units. For each unit, such as B.8(A) “Mitosis,” the teacher can find the documents for the “Unit Guide, Implementation Strategies, ELPS Strategies, the Scope and Sequence, and a Vertical Alignment.” These are accessed by clicking on “Teacher Resources” in B.8(A) “Mitosis,” under both the “Resource Type" and the “5E Model” tabs on the top right of the page.
- The materials provide teacher guidance and recommendations for the use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning. An example of this can be found in the Implementation Strategies Guide. This guide provides support on all activities featured in EduSmart, along with the design purposes and how to use them. The Implementation Strategies Guide also provides teachers with ideas for enrichment, scaffolding support, and station activities.

- In Teacher Resources, each core category has a Unit Teacher Guide that includes essential questions and sample responses that the teacher can use to engage students in critical thinking throughout the year. The Implementation Strategies document provides suggestions for teachers to utilize the resources for each of the core topics. For example, in the document subsection “Instruction Modules,” recommendations for time management and student grouping are provided.
- Materials that provide teacher guidance and recommendations are available throughout the digital biology platform. The Scope and Sequence include a vocabulary focus and essential questions for each section of the TEKS. Prior-knowledge words are also listed to support scaffolding and enhance learning.
- The materials provide teacher guidance in the Implementation Strategies section for Scientific Processes. The material provides an instructional module comparison where the teacher can implement digital and non-digital strategies to support students and scaffold learning. The materials also provide a list of support for teachers within the Scope and Sequence under the section activities.

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

- The materials include cross-content standards that explain the standards within the context of the grade level. EduSmart features leveled Readers, which are available for every content standard. They explain the scientific content embedded with English Language Arts and Reading (ELAR) standards as well. Students engage in reading about science, and at the end, there is a five-question probe that asks both scientific questions and ELAR questions about the text. For example, in Unit B.7, “Mechanisms of Genetics,” in the section on Mutations, students will learn more about how mutations are simply changes in DNA that alter a genetic message. There is then a five-question probe addressing both science and ELAR standards.
- The teacher guide in the Teacher Resources for each unit notes the required background information and prerequisite knowledge and TEKS the student needs for the current topic being presented. For example, in section B.5(C), “Cellular Processes,” the teacher guide provides pertinent definitions and relative processes. It also lists TEKS B.5(A) and B.5(C) as required knowledge for understanding the current topic.
- Obvious inclusion of cross-content standards or explanations are not readily evident within the context of the course. However, Course Materials include vocabulary supports, reading strategies, writing opportunities, historical references, and mathematical applications. For example, “Mendelian Dihybrid Crosses” is an interactive document with the embedded cross-content applications listed above. It is categorized as an IM Companion activity in B.8(B), “Mendelian Crosses.”
- The materials provide correlations to the standards within the Vertical Alignment Guide. It allows teachers to follow and view the explanation of the standards within the context of the course. Standard correlations are available in the “6-Bio Vertical Alignment” document provided in the Teacher Resources for each biology unit.

EduSmart Science Biology

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

- The materials include a comprehensive list of all equipment and supplies needed to support instructional activities. For example, the hands-on activities list all of the necessary materials needed to successfully complete the activity. One example of this is the hands-on activity for B.11(B), “Enzymes,” under Unit B.11, “Biological Structures, Functions, and Processes,” “Temperature’s Effect on Enzymes.” The teacher document for this activity lists the “materials needed through advanced preparation. Students will need access to Petri dishes, pipettes, graduated cylinders, beakers, raw liver, forceps, distilled water, and other materials.”
- Materials include a comprehensive list of all equipment and supplies needed to support instructional activities across the entire grade level. The comprehensive material list is intended to be used in conjunction with the hands-on activities, which include the required materials to complete the activity.
- In the Engineering Design documents section, a detailed instruction sheet lists the materials required to complete the engineering design challenge. The Hands-on activities in each section provide a detailed list of materials and equipment for the core topic. For example, in B.5, there is a detailed list of consumables and non-consumables needed for the activities in each of the four subsections.
- The Biology TEKS Scope and Sequence document lists equipment under “Knowledge and Skills.” Materials for instructional activities are largely available within digital components, including but not limited to virtual labs, journal activities, videos, and readers to introduce and build content understanding and interactives to provide practice. All are easily accessed within every unit. The Grade-Level Materials List document specifically for B.5(C), “Cellular Processes,” is also included for every hands-on lab investigation throughout the platform.

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

- EduSmart has allocated Units B.1 to B.4, “Science and Engineering Practices,” for safety practices, including grade-appropriate use of safety equipment during investigations.
- All hands-on activities have a correlating teacher document. The teacher document for the hands-on activity in TEKS B.5(C), “Cellular Processes: Homeostasis,” includes guidance on appropriate safety practices and safety procedures for course-appropriate investigations. The safety practices mentioned in this hands-on lab are the use of safety goggles, proper procedures for disposing of/recycling lab materials, and appropriate practices with sharp instruments.
- In the “Science and Engineering” category, a safety instruction module provides a video for teachers to introduce students to basic safety equipment and procedures, including goggles, gloves, aprons, eye wash, face wash, fire blanket, and fire extinguisher. In hands-on activities for various units, the activity provides safety practices and equipment required. For example, at B.12(A)(B), “Structural Hierarchy in Biological Systems,” the activity “C for Yourself” provides a safety section addressing precautions and emphasizing in bold that goggles and gloves are required.
- There is evidence of guidance for safety practices within the section titled B.1 to B.4, “Science and Engineering Practices.” The digital interactive is titled “Safety” and is structured as a training module. Safety guidelines are included in hands-on lab investigations. For example, section

B.5(C), “Cellular Processes, Homeostasis,” lists safe practices such as wearing goggles and using proper disposal methods according to teacher recommendations.

- The materials have one safety scenario but are missing grade-appropriate use of safety equipment during investigations. Each unit has a materials list but does not have the use of safety equipment during hands-on investigations.

EduSmart Science Biology

Indicator 8.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials do support scheduling considerations and include guidance and recommendations on required time for lessons and activities. The Scope and Sequence gives the recommended days per unit. For example, it is suggested that the teacher spend six to seven days on Unit B.6(A), “Cell Cycle.”
- The materials provide an expected time per component guideline to support scheduling considerations of components and activities. For example, in the Unit Teacher Guide, you will find suggested times for each of the activities provided: 10 minutes for Instruction Module, 20–30 minutes for IMC, 30–45 minutes for Student Review, 10–15 minutes for Quiz, 15–20 minutes for Activities, etc. The times vary based on the type of activity and task.
- In Teacher Resources, the Implementation Strategies document provides suggestions for teachers to utilize the resources for each of the core topics. For example, in the document subsection, Instruction Modules, recommendations for time management, including video length, breaks, and expected time allotment for the module, is provided. The Scope and Sequence in the Teacher Resources provides a table with suggested days to schedule for each core topic and subtopic to pace instruction throughout the year. For example, B.8, “Mechanisms of Genetics,” suggests 5–6 days for Meiosis and 6–8 days for Mendelian Crosses.
- There is a recommended range of days for each lesson giving flexibility to the instructional cycle. For example, the Scope and Sequence recommends 5–7 days to teach Cell Differentiation. Scheduling considerations are possible when lessons are viewed in the “Resource Type” tab. Each subtab has options for a teacher to select. The subtabs include: “Instruction, Online Activities, Hands-on Activities, Vocabulary and Literacy, and Assessments.” The teacher can then

create a playlist of selected instructional activities that meets scheduling and instructional needs.

- The material supports scheduling considerations and includes guidance and recommendations on lessons and activities. The Scope and Sequence allow for a range of days. The materials give the teacher autonomy to spend more or less time on a particular topic based on the needs of the students and the teacher's preference.

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

- The 5E Model tab in each unit organizes the materials in a strategic sequence moving in the following order: Engage, Explore, Explain, Elaborate, and Evaluate. The material also considers connections between the development of conceptual understanding, skill development, and Scientific and Engineering Practices (SEPs).
- The Content Library of the materials organizes the categories and units to ensure students learn prerequisite concepts to ensure meaningful understanding. For example, in Unit B.7, “Mechanisms of Genetics,” molecules of heredity, protein synthesis, and mutations are taught before applied genetics is introduced.
- Guidance for strategic implementation of content sequencing is provided by course units organized according to the Scope and Sequence and aligned with the TEKS.
- Some guidance for strategic implementation is quite obvious and specific. For example, in B.6(A), “The Cell Cycle,” the Unit Teacher Guide advises teachers not to teach mitosis and meiosis at the same time because comparisons are not relevant or helpful for developing deep understanding.

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

- The materials provide a Scope and Sequence table with the suggested number of days to teach each unit topic and a list of possible activities to be implemented during the course of the school year.
- The materials for each subcategory provide various modules and activities the teacher can implement to support learning during the school year. For example, B.5(A), “Biomolecules,” lists four Vocabulary and Literacy activities, offering teachers the flexibility to select from for time or reinforcement purposes.
- The materials and resources for each unit and lesson in the digital platform are easily accessible and customizable, especially when viewed through the Resource Type tab.
- The Scope and Sequence specify a range of days that makes the instructional process manageable for the school year. Many activities, such as virtual simulations, provide investigative opportunities that do not require the same amount of time as traditional laboratory or field study investigations. For example, B.10(C), “Factors Leading to Natural Selection Simulation on Food for Finches,” provides the proper context, components, and scientific processes in one virtual experience.
- The materials designated for the course are flexible and can be completed during the school year. However, the teacher cannot take the maximum number of days on each topic because the total days are more than 200, and a school year is between 186 days to 196 days long.

EduSmart Science Biology

Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The materials include an appropriate amount of white space and a design that supports and does not distract from student learning. They achieve this with a clear structure and hierarchy for displaying the material. The material is broken down and labeled by TEKS topic. The student and teacher can click on the topic and find the subtopic labeled. Each section is further broken down by TEKS making it easy to navigate and find what you are looking for. For example, to find information on DNA the user would click on B.7 Mechanisms of Genetics and be shown all of the sub TEKS for that unit including B.7(A) Molecules of Heredity and DNA. Each of the units broken down by TEKS have headings and subheadings that have a clear, relevant hierarchy. The content is organized in a logical progression from microbiology such as cells to macrobiology ending with Ecology.
- In the materials, adequate white space around and between lines of text or blocks of text makes content easy to read and comprehend that make it easier for students to focus on and learn from the content. The adequate white space within EduSmart's materials also helps draw attention to important information while creating a sense of organization. By using appropriate fonts in the educational content, the materials ensure that content is clear and easy to read. For example, as the student or teacher navigates from B.5 Biological Structures and Functions to B.5A Biomolecules to Anchoring Phenomenon, the margins and space around the selection boxes contain ample white space with no content to delineate the section or content.
- In the materials, the few colors used are strategically and consistently placed to help the student and teacher navigate through the content, making content easy to read and comprehend for students to focus on and learn. For example, for B.5 Biological Structures and Functions, B.5A Biomolecules, in the “Instruction” section, the “Anchoring Phenomenon” module is coded

purple, “Instruction module" is pink and “IM Companion” is blue. The same color scheme is used throughout the materials for each module selection.

- The” Instruction Module” in B.5(C) Cellular Processes explains cellular processes such as energy conversions, transport of molecules, and homeostasis. The digital module provides information through narration, text, images, and animations. Occasionally, a student answers a review question that appears on the screen. The design and layout of information on the screen provides space so that it is not distracting for students. Documents within the digital platform include an appropriate amount of whitespace and design that is not distracting to students. For instance, the “Activity” B.9(B) Horseshoe Crabs, found in Chapter B.9(B) Fossils and Evolution, has appropriate top, bottom, and side margins. The title and subtitle are double spaced. Bold print titles and white space delineate paragraphs and there is consistent white space around images and data tables.
- The materials include an appropriate amount of white space and a design that supports and does not distract from student learning by creating ample space between unit topics at the main digital dashboard for students. The materials for the “Independent Module Companion” document, whether digital or printed, creates white space that chunks the assignment for students to easily locate the word bank. They can read sentence by sentence without confusion of text. The word bank has ample space for students to strike through for word elimination. The digital interactive for students has a window within a window that also creates a positive and distraction free visual learning platform. The “Teacher’s Guides" are also designed in a way that teachers can locate important information easily for planning and implementation. Teachers can easily find subheadings quickly because subheadings are bolded and chunked by “Common Misconceptions,”“Essential Questions,” “TEKS,” and “Background Information”.

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

- The materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example the “IM Companion” for B.10(C) Natural Selection And Biological Diversity, contains embedded pictures of species that share similar traits but are found in different parts of the world. The materials include vocabulary cards with clear and authentic images and graphics to define and support the new words students are learning. For example in B.7(B) Protein Synthesis the materials provide terms that are relevant to the student that were previously seen in the hands-on activities and digital interactives. The “IM Companion” also has an appropriate image that allows for students to focus on the image for learning and analysis free of distractions.
- The materials strategically use pictures and graphics to enhance student learning and engagement without being visually distracting. Age appropriate pictures and graphics are selected to support the content and engage students without overwhelming them. The images and graphics serve a clear purpose to support and enhance student sense making of grade-level appropriate content. For example, for B.5B Comparing Prokaryotic and Eukaryotic Cells Anchoring Phenomenon: Prokaryotes, realistic photographs and diagrams are utilized to engage students in drawing from their prior knowledge without distracting them.
- The materials strategically use pictures and graphics to enhance student learning and engagement without being visually distracting. The images and graphics serve a clear purpose to support and enhance student sense making of grade-level appropriate content. The materials include age-appropriate pictures and graphics that support student learning and

engagement. For example, B.13A Interdependence Among Organisms "Interactivity:" Interactions the images in the activity depict photos of organisms in nature and field notebook for observations so students have the sense of a field investigation being conducted.

- In Chapter B.5(C) Cellular Processes, the investigation titled "The Effect of Stress on Cellular Membranes of Beta vulgaris", displays a graphic of a plasma membrane between the title and background information provided in the first paragraph. The background information refers to characteristics of the plasma membrane, which is represented in the graphic.
- Evidence of age and content appropriate graphics and images are located in the Reader B.9(B) The Fossil Record in Chapter B.9(B) Fossils and Evolution. The textual information relates to the image in proximity. For example, the initial text describes a field trip experience where students examine fossil remains such as bones and teeth. The representative image is of shark teeth of various sizes. The next image is of a fossil in stone that illustrates the textual information about the fossil record. The visual connection of images to the information supports student learning.

Materials include digital components that are free of technical errors.

- The materials include digital components that are free of technical errors. Materials are free of spelling, grammar, and punctuation errors. For example, for B.10B Factors Leading to Natural Selection Journal 2, students read and analyze a paragraph about leopard frog lifespan and the number of offspring they produce. The journal prompt asks the student to evaluate the validity of the following statement: "The ability to produce more offspring than can survive is an evolutionary advantage that helps ensure the survival of these species." Students justify the phenomena using their knowledge about the concepts and the information in the paragraph to write a response to the statement. Grammar is used correctly in this activity. The "IM Companion" for B.5(C) is also free of spelling, grammar, and punctuation errors.
- In the materials, the "Interactivity" component found in "On-line Activities," includes digital components that are free of technical errors. The activity provides targeted instruction by leading students through a review of the scientific concept. Students are provided with information and explanations for correct answers. For example, In the "Interactivity" for B.10D, What's the Mechanism, students observe graphics representing different evolutionary mechanisms and identify the relevant evolutionary mechanisms associated with each image. They then select the evolutionary process of gene flow, mutation, and genetic drift through graphics with correct answers and explanations. Materials are free of inaccurate content materials or information.
- Digital components, such as the Interactivity B.13(A) Interactions in Chapter B.13(A) Interdependence Among Organisms, are free of technical errors. For example, the digital activity reviews the symbiotic relations between different species. Students select an image and identify it with a label such as mutualism or parasitism. The audio prompt indicates correct or incorrect selections. If the answer is incorrect, one or two "lifelines" (extra chances) are provided to the student. If the answer is correct, the audio prompt summarizes the relationship represented in the image and cites the definition of the word. At the end of the activity. The student's score is posted on the final screen.
- The "Word Explorer," a digital feature in every chapter, helps students learn, practice, and retain. vocabulary words and definitions. For instance, in B.11(A) Photosynthesis and Cellular Respiration, the "WordExplorer" includes 18 terms represented by flashcards that include the term and a representative image of the word. A student selects a flashcard and multiple images appear on the screen. The audio prompt tells the student to select all images that represent the term. The next screen presents four concept statements about the term that may or may not be

fact-based. The student must select the factual statements. In the final task, a student drags and drops the appropriate words to complete a fact-based statement. If all tasks are completed successfully, the flashcard flips over to reveal the definition of the term.

- The materials include digital components that are free of technical errors such as grammatical errors, technical errors, punctuation for student learning activities. The content information is clear and accurate. For example, Protein Synthesis content and curriculum is accurate explaining the triple parts of the Central Dogma on how proteins are created within the cell. The materials have academic vocabulary words that are spelled correctly, used correctly in tense, and also are accurate in the systemica order of learning the building of protein structures to a three dimensional shape.

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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 and course-specific 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

The 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 and course-specific 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.

- In the materials, EduSmart's “Quizzes” found in “Assessments” integrate digital technology and tools that support student learning and engagement. EduSmart's quizzes utilize digital technology and tools to enhance student learning through online assessments. For example, for B.5D Viruses, students are presented with 10 questions to respond to pertaining to Viruses. The multiple choice questions are provided in online form and include corresponding tables and/or charts that support student learning and engagement .
- In the materials, the “Interactivity” found in “On-line Activities” integrates digital technology and tools that support student learning and engagement. The “Interactivity" can be used as a formative assessment as they present the students with content related questions and practice the content in a simulation or game platform. For example, B.5B Interactivity: Identify and Classify, the student assesses their knowledge on sorting and classifying cells based on their characteristics if they are prokaryotic or eukaryotic. The online format simulation and questions related to prokaryotic and eukaryotic cells enhance and support student learning.
- The Edusmart platform integrates digital tools and technologies that support student learning. Each instructional component is designed for learning and engagement. The “Instructional Modules, Interactivities, and Word Explorer” use a gamified approach with learning checkpoints interspersed throughout sections of content information. Digital technology and tools enhance student learning through such features as learning games, interactives, simulations, and online

assessments. For example, in Unit B.5(B) Prokaryotic and Eukaryotic, the materials provide students with an engaging activity to identify and study these two main types of cells.

- The materials also provide student digital components, including embedded tools, such as note-taking, variable font size, text-to-speech, dictionary, glossary, annotations, highlighting, and editable forms. Students have text-to-speech with the "Word Explorer" that explains the instructions to the student. The materials provide "Readers" such as the one in Unit B.5(B) Prokaryotic and Eukaryotic Reader that allows students to listen to the passage and change the color of the text, font, and font size to their choice while reading or listening. As the reader executes text-to-speech, the word is highlighted for students to follow along.
- The materials guide integrating digital technology and tools in whole groups, small groups, and individual settings. Digital technology and tools can be projected on a large screen or individual student devices and utilized with touchscreen technology or a keyboard and mouse. For example, in the "Teacher Guide and Implementation Strategies" for Unit B.5(D) Viruses, the materials offer teacher guidance for integrating all materials, both digital and printed, for the students in small groups or one-on-one. The materials guide the students as they are learning and suggest how to connect with accelerated learners, struggling learners, and learners that require accommodations and more support.

Materials integrate digital technology in ways that support student engagement with the science and engineering practices and course-specific content.

- In the materials, the "Interactivity" component integrates digital technology in ways that support student engagement with the science and engineering practices and course-specific content. The interactivity provides opportunities for students to obtain, evaluate, and communicate information using digital tools by taking the student through a content related game or simulation activity. For example, B.13A Interdependence Among Organisms Interactivity: Interactions, the images in the online activity depict photos of organisms in nature and include a field notebook for observations so students have a sense of how a field investigation is conducted. The students identify different types of interactions between organisms, analyze how the interaction affects each organism, and record responses to probes in the online field notebook.
- In the materials, the "Simulation" component found in "Online Activities" integrates digital technology in ways that support student engagement with the science and engineering practices and course-specific content. The "Simulation" provides opportunities for students to obtain, evaluate, and communicate information using digital tools by taking the student through a content related game or simulation activity. For example, in B.10B Factors Leading to Natural Selection Simulation: Food for Finches, students investigate how environmental factors such as the availability of different food sources can cause natural selection to act on traits such as beak size and shape and change the predominant phenotypes in a population over time. Students select a hypothesis, measure beak size, conduct an investigation, record their observation, and analyze the data to form a valid conclusion and consider impact on the future generations of finches.
- Digital tools such as simulated lab investigations support student engagement with science practices and content. For example, in Chapter B.6(A) Cell Cycle, a lab simulation titled Onion 'Cry'sis has students studying the cell cycle by examining cells in an onion root tip. Students can adjust the microscope for field of view and focus. The students can also manipulate the slide position. Data tables are used to log in numbers of cells going through specific parts of the cell cycle. Students then draw conclusions after data analysis. Students engage in a digital research

activity in Chapter B.6(B) Cell Differentiation. The digital document titled Cell Differentiation and lincRNA provides background information about past understanding of junk DNA and newer information about lincRNA. Students are guided to research science journals, articles, and abstracts in order to gather and summarize information about lincRNA. Citation of references is to accompany the digitally created 1-page summary.

- Materials provide opportunities for students to obtain, evaluate, and communicate information using digital tools. For example biology materials include short video simulations for the phenomena of Unit B.7(A) Genetics & Heredity. Students watch a short video of a rotating double helix to observe and to think of one of the posed essential questions by the teacher. Videos are posted on a secure platform for other students to review and provide feedback to the teacher, in small groups, or whole-group instruction.
- The materials integrate digital technology in ways that support student engagement with the science and engineering practices and course-specific content with the "Scientific and Engineering Practices Unit." This unit provides digital technology for students to think, act and perform like scientists and engineers. For example, the "Hands-on Activities" provide four activities to take research from scientists and expand on their knowledge of the science and engineering concepts and pose questions for the students to solve.

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

- In the materials, "Live Lessons" found in the "Workspace" tab integrate digital technology that provides opportunities for teachers and/or students to collaborate with one another. The "Live Lessons" integrate digital technology that supports teacher-to-student collaboration. This applies also to students being able to collaborate with the teacher regardless of their physical location. Through the use of "Live Lessons," students and teachers are able to collaborate with one another in real time.
- The materials feature "Lesson Sharing" and "Activity Sharing" components found in the "Workspace" tab that integrate digital technology and provide opportunities for teachers and students to collaborate. This online collaborative platform in which teachers can post assignments allows them to collaborate with one another on designing lessons. This applies also to students being able to collaborate with the teacher regardless of their physical location.
- Teachers can share and collaborate with teachers and also with students within the Edusmart platform. Collaboration between students is provided in the "Grouping" tool. Collaboration between students and teachers takes place during "Live Lessons." Teachers can share assignments with other teachers, especially if the lesson component, such as the "Instructional Module Companion," has been modified.
- The materials integrate digital technology that provides opportunities for teachers and students to collaborate within the LMS platform. Teachers can email teachers or students the assignments within the LMS and communicate assignment details on "Google Classroom" which is shareable within the LMS screen. Teachers can also communicate with student groups that they create and share assignments individually or to a shared group of students.

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

- EduSmart's digital technology is compatible with a variety of learning management systems and technology devices. When assigning lessons the teacher can assign on either the Edusmart platform, provide a URL link or share on Google classroom.

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- EduSmart's digital technology is compatible with a variety of learning management systems and technology devices. The digital learning platform can be accessed through a variety of single-sign on servers. The digital technology is also accessible on computers, laptops, and tablets.
- Edusmart is its own fully functional platform and is also compatible with a variety of learning management systems according to their certifications. Also, they provide information about system requirements and firewall configurations.
- The materials integrate digital technology that is compatible with a variety of learning management systems. The LMS is accessible and compatible with Chromebooks, iPads, PCs, Apple computers, and/or smartphones through a supported browser. The materials are accessible online through any device with internet access. The materials are downloadable with the use of PDF viewer and with cookies enabled. All videos are playable within the website and protects students from outside sources.

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Indicator 9.3

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

1	Digital technology and online components are developmentally appropriate for the course 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 course-appropriate and provide support for learning.

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

- EduSmart's digital technology and online components support grade-level learning objectives of the materials as outlined in the TEKS. The content focuses on the scientific method and inquiry skills with online components like "Simulations" that provide students the opportunity to collect and analyze data or conduct virtual experiments. For example, in B.10B Factors Leading to Natural Selection Simulation: Food for Finches, students conduct an online investigation to determine if environmental factors cause natural selection to act on traits and change in a population over time. Using the online digital tools of the "Simulation," students select a hypothesis, measure beak size, conduct the investigation, record their observations, and analyze the data to form a valid conclusion and consider impact on future generations of finches.
- In the materials, the "Scope and Sequence" guide found in "Teachers Resources" details how the online and digital components align with science knowledge and skills. The materials provide related TEKS and SEPs, online and digital components within the "Scope and Sequence Guide." For example, the guide provides TEKS B.9 and B.9A about Evolutionary Theory along with the suggested SEPs such as B.1A and B.1E about asking questions, defining problems, and collecting data. The guide then gives "Interactivity" as the appropriate resource for that topic, which is an online digital activity.
- The digital technology and online components are appropriate and aligned to the scope of science knowledge and skills. For instance, standard B.6 Biological Structure, Functions, and Processes includes B.6(A) Cell Cycle, B.6(B) Cell Differentiation, and B.6(C) Disruptions In the Cell

Cycle showing progression of concept development. Also, each instructional component within the subset of standards is labeled with the standard identifier.

- The digital technology and online components are developmentally appropriate for the course and align with the score and approach to science knowledge and skills in the progression. Digital technology and tools enhance student learning through features such as learning games, interactives, simulations, and online assessments. For example, in Unit B.5(B) Prokaryotic and Eukaryotic, the materials provide students with an engaging activity to identify and study these two main types of cells. This is also true with Unit B.5(B) Endosymbiotic Theory, which explains the first cells and how the cells came to be from prokaryotic cells to eukaryotic cells.

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

- In the materials, the “Implementation Strategies” document provides teacher guidance on the use of the embedded technology to support and enhance student learning. In the document, each technology component includes guidance for the teacher on how that specific component can be presented and used in their instruction to support and enhance the learning of students. For example, in the guide, it is recommended to allow 2-5 minutes for students to observe and discuss the “Anchoring Phenomenon” images to captivate curiosity and activate prior knowledge.
- In the materials, the “Implementation Strategies” document provides specific teacher guidance for embedding the technology within assessments and guidance for digital and online assessment tools. For example, the guide recommends using the “Edusmart Quiz” online assessment for whole or individual assessment and notes that have embedded tools for accommodations for text-to-speech and language support. Teachers can monitor student progress and evaluate the effectiveness of the technology using the “Reports” icon/digital tool for group quiz, student quiz, and quiz progress monitoring.
- There is guidance for teachers to help introduce them to the tools within the platform. For example, the “Home” tab has short how-to videos for finding content, teaching with a live lesson, managing groups, and making assignments to help teachers get started. Also, a teacher can click the “Help” tab to search for guides and tutorials.
- The materials provide teacher guidance for the use of embedded technology to support and enhance student learning with video resources, interactive lessons to observe specimens, and visual vocabulary practice. The materials for the students provide clear and concise text instructions and text-to-speech instructions for all vocabulary terms that are new concepts to students. For example, all “Word Explorers" explain the instructions for students to hear, and include textual instructions for students to read. For example, Unit B.5, Comparing Prokaryotic and Eukaryotic Cells, provides both text instructions and text-to-speech instructions for students.
- Materials provide clear instructions and tutorials within the teacher platform on how to use the embedded technology. The “Implementation Guide” includes step-by-step instructions for setting up and using the technology, as well as troubleshooting tips for common problems that teachers may encounter. Materials include professional development videos and training for teachers to continue to develop their skills and knowledge in using the embedded technology to support and enhance student learning. Materials include webinars, online courses, and other resources that provide ongoing support and guidance. All teacher supports are located on the “Home” screen of the LMS.

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

- The materials are available to parents and caregivers to support student engagement with digital technology and online components. The learning platform can be accessed regardless of physical location. The “Letter to Caregivers” encourages parents/caregivers to use the Edusmart program at home to interact and support the child’s science education. This design allows students to access materials at home and provides parents and caregivers the opportunity to access the content to support student engagement.
- In the materials, the “Teacher Communication Guide” found in the “Help” section, provides suggestions on how teachers can make the materials available to parents and caregivers to support student engagement with digital technology and online components. For example, the guide states that providing parents with access to their child's platform is another great way to reinforce learning at home and suggests teachers instruct parents that reviewing the “Instructional Modules” can help them understand concepts that are being taught as well as build communication between the caregiver and child about the learning that occurs.
- Materials support caregivers' involvement in student engagement with digital technology. For example, the “Letter to Caregivers” provides information about how to engage with their student or students within the platform. A note to the caregiver includes the student log-in information, the topic of study, and question stems to support dialogue about the content with the student. The “Teacher Communication Guide” encourages teachers to inform caregivers about how to use instructional components to enhance their student’s learning experience.
- The materials are available to parents and caregivers to support student engagement with digital and online components with their links to “Letters to Caregivers” and “Teacher Communication Guide.” An e-letter provides online access to materials, resources, and activities to reinforce student learning and development. Online materials include a section specifically for families with links to information about science objectives, at-home extensions, related inquiry projects, and websites for student research.