Savvas Learning TX Miller & Levine Experience Biology

Savvas Learning Texas Miller & Levine Experience 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 and 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 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.

- The teacher eText provides a TEKS correlation guide with identified activities that allow students to develop, practice, and demonstrate an understanding of science and engineering activities that is aligned with state standards. This includes inquiry labs, performance-based assessments, etc.
- For example, the Inquiry Lab in Investigation 4, Experience 3 (Meiosis), challenges students to develop their science and engineering practices (specifically TEKS 1.G and 2.A) through modeling the stages of mitosis and meiosis using pop beads. Also, the Introduction to Science and Engineering Worksheet for Experience 2 (Scientific Inquiry and Measurement) challenges students to practice TEKS 1.B and 4.A through asking questions about the potential development of an electrical wind power farm, constructing a potential solution to a problem related to a wind farm, and evaluating and revising their solution. The calculating percent error requires students to define the problem, plan and execute it, then evaluate it by reflecting on the answer. Finally, the performance-based assessment in Investigation 11 (Plant Systems) challenges students to demonstrate mastery of science and engineering practices (specifically TEKS 1.A, 1.B, and 3.B) by designing a rooftop garden that can be developed in urban areas. This

assessment promotes a variety of skills, including constructing explanations regarding the efficacy and functionality of green roofs and discussing the benefits or drawbacks of various green roof designs.

- Chapters are structured via phenomena that are continuously referenced as students learn more. For example, the teacher dashboard has a link to a table of contents of anchoring phenomena to assign students for various topics. There are two SEP questions on the eReader ``How Can Algae Be Used as Your Energy Source?" One is a SEP Plan an Investigation, "What type of experiment could you set up to learn about algae and energy?" The second option is a SEP Ask Question that reads, "Based on the abundance of algae in nature, do you think algae is a good source for biofuel?" Also, in Chapter 6, students learn about gene expression through the question, "Why are the tadpoles different from each other?" They are asked to answer this question in CER format that they develop and modify at different points in the chapter.
- In the teacher guide for this chapter, SEPS are directly listed on the first page and then again on the page discussing the investigation. For example, the SEPs are directly placed and referenced within the teacher guide for Investigation #6 within the teacher's background. Teacher materials include a short summary in "Introduction to Science and Engineering: Science and Society" that outlines the theory and practice of the scientific/engineering practices and how they are represented in the materials and the associated text.

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.

- There are cues for teachers throughout the planners that support connecting the content to the SEPs. For example, the Introduction to Science and Engineering introduces and promotes the practice of Science and Engineering Practices (specifically related to inquiry, measurement, data analysis, calculations, models, and communication). Throughout subsequent investigations, these practices are developed through activities such as modeling anchoring phenomena and inquiry labs. For instance, the Science and Engineering Practice regarding safety procedures are implemented in each Inquiry Lab.
- All chapters are based on the 5E method and structured accordingly. This includes anchoring phenomena, laboratories, text, teacher presentations, demos, assessments, etc. This allows students to build their knowledge according to best practices as outlined by TEA. This is evidenced by students exploring the material before receiving an explanation. For example, the exploration in Chapter 6, Experience 1, shows a multimodal presentation of information to explore, including a segment of "everyday phenomenon" that students may relate to. Within the explain and elaborate section, there are several ways students are asked to elaborate on the information they have learned, including an analogy and the virtual text in English and Spanish for students.
- Also, Experience 1 (Darwin's Theory: Natural Selection) in Investigation 9 (Mechanisms of Evolution) is structured into four components: Engage, Explore, Explain/Elaborate, and Evaluate. In Engage, students complete a simulation that serves as an introduction to the concept of survival of the fittest. In Explore, students analyze variations in traits through a Quick Lab and investigate connections between characteristics and environment through Interactivity. In Explain/Elaborate, students watch an Explain Video discussing orchids and evolution, read a passage in the Experience Handbook outlining the work of Charles Darwin, and complete a Summary Review of the Experience. In Evaluate, students complete a quiz aligned with the concepts they learned throughout the Experience.

- A final example is Investigation 7: The Human Genome, Experience 3; through the 5E model, students engage in the everyday phenomenon where we see multiple colors when ink separates. During the Explore section, students engage in an inquiry lab on restriction enzymes followed by an interactivity where they manipulate DNA and conclude with a Beyond Labz on DNA profiling. In the explain stage, students watch an exploring the Human Genome video with processing components in the Experience Handbook. The Extend practice is connected to the explain components in the handbook as well. The next part of the lesson for Evaluate is a quiz on Studying the Human genome with remediation suggestions built in. The last part of the lesson is to revisit the anchoring phenomenon.
- In the teacher supplementary resource, "Designed for Texas," the material outlines a "new teaching module" that sequentially implements activities for students that are TEKS-aligned, systematically scaffolding the advancement of student knowledge and skills.

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

- All chapters include experiences within them. All experiences contain an inquiry investigation where the students will practice their content knowledge in new ways while maintaining the SEPS and safe laboratory practices.
- Within each chapter is a performance task that asks students to hypothesize, design, and investigate a new phenomenon or question directly related. For example, the performance-based assessment, “Growing More and Better Corn,” is a task-based assessment that evaluates problem-solving strategies as acquired in the unit. Also, within Chapter 6, which is all about gene expression, the students are asked to research mRNA drugs, like the Covid-19 vaccine, and design a model to explain mRNA therapy.
- Publisher materials include hands-on and authentic learning experiences that are TEKS driven and focus on problem-solving skills. This includes differentiated laboratory experiences. For example, in the Quick Lab for Maintaining Temperature, students write their answer to the prompt, “Explain which method you think would be more effective in maintaining the 35-degree temperature of water.” Students then discuss their responses based on two different methods and come to a consensus.
- Another example is the performance-based assessment in Investigation 3 (Cell Growth and Differentiation). This assessment asks students to analyze a particular medication to guide research and develop models to understand how other cancer drugs work. Students ask questions and problem-solve to determine the structure of their model depicting the disruption of the cell cycle in cancer cells.
- A final example is in Investigation 8, Experience 2 (Applications of Biotechnology). Students have an opportunity to conduct a laboratory investigation in order to determine the effectiveness of a detergent containing bacteria-produced enzymes compared with a detergent lacking bacteria-produced enzymes.

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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 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 include an example of anchoring phenomena for each unit. These are real-world scenarios that engage students and allow them to apply unit concepts to a variety of performance tasks grounded in science and engineering principles. For example, the anchoring phenomenon in Chapter 13 is the question, "Why do I have to get a flu shot every year?" Students are then asked to explain their answers. At the end of every experience (lesson), students are asked to revisit the phenomenon to improve their explanations.
- Teacher resource outlines opportunities for students to consistently use a variety of experiences to make sense of phenomena for each unit. These include reading, writing, thinking, and acting like scientists and engineers. Teachers are given "relevant phenomena" as part of their teacher guide for extension activities. For example, the additional phenomena in the teacher guides provide a related alternative for the State of Texas that can extend the learning. Investigation 2 asks, "Where does the mass of this tree come from?" referencing an oak tree in Goose Island State Park on the Texas Coast.
- Students begin every experience with an anchoring phenomenon and conclude the lesson by revisiting it. There are references to the phenomena throughout the experience. For example,

Investigation 2 (Energy in Cells) begins by presenting an anchoring phenomenon titled, "How can algae be used as an energy source?" At the end of each of the four Experiences, students are prompted to complete a reflection that aids them in incorporating the knowledge of that Experience (Energy and Life, Cellular Respiration, Fermentation, Photosynthesis) into the anchoring phenomenon. At the end of Investigation 2, students revisit the anchoring phenomenon and complete a summative reflection.

- Another example is Investigation 16 (Human Impact on the Biosphere), which begins by presenting an anchoring phenomenon titled, "How do invasive species impact the environment?" At the end of each of the three Experiences, students are prompted to complete a reflection that aids them in incorporating the knowledge of that Experience (Human Activity and Ecosystem Stability, Biodiversity and Environmental Change, Humans and the Environment) into the anchoring phenomenon. At the end of Investigation 16, students revisit the anchoring phenomenon and complete a summative reflection.

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

- Teachers are provided with related phenomena at the beginning of each Investigation that are directly linked to the State of Texas and with which students may be familiar. For instance, the related phenomenon for Investigation 2 (Energy in Cells) challenges students to consider how trees grow by investigating the Big Tree in Goose Island State Park on the Texas coast.
- Every lesson involves "everyday phenomena" where students look at data and issues they may be aware of. For example, in Experience 3, students look at data from children's vaccination schedules and rates of receiving the flu vaccine. Students are asked to look at case rates and make predictions.
- The materials are strategically aligned with the TEKS standards and build on prior knowledge. Teachers are given a TEKS progression at the beginning of every chapter so they can reference science content the students learned in previous years. For example, students practice solving problems through inquiry labs. The cell growth inquiry lab includes background text and a lab demo video that sets the stage for the investigation and allows a version to be chosen between open-ended, guided, shortened, or advanced.
- Students are encouraged to apply prior knowledge to everyday phenomena, scaffolding and preparing students for new content in each unit. For example, the anchoring phenomenon for Investigation 11 (titled "What is the world's largest organism?") poses the following question to students, "What does it mean to be alive?" Drawing on prior knowledge, cultural background, and experiences, students are given the opportunity to discuss their ideas with the class in order to reach a consensus.

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

- Every experience includes a short background, and objectives are mentioned for teachers to see and use. The materials align with these objectives and are assessed for at the end of every chapter. For example, the Performance-Based Assessment for Investigation 6 (titled "A New Kind of Drug: mRNA") contains an objective ("...students analyze mRNA drugs, conduct research to find out about new developments in this technology, and create an original analogy to explain how mRNA drugs work"). Students incorporate their knowledge of gene expression from various experiences within the Investigation in order to complete the objective.

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- When beginning each anchoring phenomenon, teachers are given a script to help them guide student thinking and develop better explanations. The laboratory partnership link outlines the relationship between anchoring phenomena and authentic learning experiences as implemented in the labs. For example, the teacher guide includes scripted notes for the teacher to support by relaying the goals behind the phenomena and engineering problems. Teachers build a portable ecosystem and engage students with the demonstration via discussion. The teacher is provided with background content, guiding questions, and step-by-step instructions.
- The teacher course planning and pacing guide clearly outlines the content and timing suggestions for each topic. The anchoring phenomena are posted for each unit, allowing teachers to "hook" students at the beginning of new units and set the tone for concepts that will be covered. For example, the anchoring phenomenon for Investigation 6 is titled "How did these tadpoles come to be so different from each other?" This question serves as the goal for the phenomenon. An answer key (titled Investigation Answer Key) is provided in the Investigation 6 online module. This answer key provides guidance so teachers can understand how to help students reconstruct the idea. Another example is the suggested script for modeling the phenomena of biotechnology. The script prompts the teacher to remind students about the limitations of models and to remind them they will revisit this incomplete idea later in the learning cycle.

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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.

- The materials are designed to help students connect their knowledge across different units. For example, the materials present the role of enzymes as a core, recurring concept that is developed throughout the course. Enzymes are first introduced in Investigation 1, in which students learn what enzymes are, that enzymes require optimal conditions, and encounter various activities, including analyzing data relating enzymes to digestion. This foundational knowledge of enzymes is built upon in further units such as Investigation 2 (cellular respiration and photosynthesis), Investigation 5 (DNA replication), Investigation 6 (gene expression), and Investigation 12 (digestion). As another example, the foundational topic of heredity is intentionally spiraled throughout individual experiences and within Investigations. Heredity is first introduced in Investigation 4 when students learn about Mendelian genetics. After this, students develop their knowledge of heredity by learning about DNA replication (Investigation 5), gene expression (Investigation 6), human inheritance (Investigation 7), and molecular technologies (Investigation 8).
- The materials are designed to help students connect their knowledge within different units. For example, within Investigation 11: Plants, the TEKS progression is listed and details the previous year's learning that ties into the current material. Within the student edition of Investigation 11, the students go from identifying plant parts to identifying plant responses to their environment. As another example, mutations are covered multiple times within a unit. The anchoring

phenomenon introduces the concept. Next, students conduct an interactive quick lab modeling mutations. After watching a video, "Mutant Superheroes," students have assessment questions and revisit the phenomenon. Mutations are also covered across units from Investigation 6 to 8, 9, 10 and 13.

- Each investigation is anchored in real-world, commonly observable phenomena, with new vocabulary tied into previously acquired knowledge. For example, in SE Investigation 11, plant systems have their food/energy needs compared to those of humans, asking students to brainstorm differences in how plants process energy.

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

- Each investigation begins with an anchoring phenomenon that activates prior knowledge by challenging students to incorporate their prior knowledge and experiences to explain the phenomenon. For instance, the anchoring phenomenon for Investigation 10 (Evidence of Evolution) challenges students to consider how whales may have evolved from land mammals. At the end of each Investigation, students revisit the anchoring phenomenon to incorporate content knowledge that they developed throughout the Investigation. Also, Investigation 11 begins with the question, "What is the world's largest organism?" Each individual experience also begins with daily relevant phenomena to help students further their understanding of why the tree is the largest organism and not a blue whale.
- Each investigation increases in complexity by scaffolding from concrete/representational towards the abstract. For instance, Investigation 4 (Inheritance and Variation of Traits) begins by investigating Mendelian inheritance and simple Punnett squares in Experience 1. Next, Experience 2 introduces non-Mendelian inheritance and more complex Punnett squares. Finally, Experience 3 incorporates the process of meiosis into students' understanding of inheritance. Another example is in the investigation of the challenge of disease. The first experience has students learning about different types of diseases, their causes, and how they are spread. Then, in experience 2, students learn about the human body's natural defense against pathogens. In experience 3, the last part of the investigations, students investigate the challenges of emerging diseases, which include the spread and evolution of COVID-19. The inquiry labs have three different levels of inquiry and contain specific on-the-spot questions a teacher can ask to assess student understanding. The teacher resource, "Planned for Texas," clearly outlines the logic behind activity scaffolding and how materials are intentional in their sequencing to strengthen and deepen student knowledge through experience.
- The 5E model in the investigations supports the progression from concrete to abstract concepts. During the Engage activity, students discuss the phenomenon of where bacteria come from. Then, in the Explore activity, they complete a quick lab to model disease transmission. The Explain and Elaborate sections include videos and handbook prompts on illnesses caused by viruses and other living microbes. Before the quiz in the Evaluate section, students have a quick summary to review their understanding of diseases.

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

- Materials utilize the 5E (Engage, Explore, Explain, Elaborate, Evaluate) instructional model to implement instruction for each experience within an investigation. For instance, Investigation 4, Experience 1 (Mendelian Patterns of Inheritance) begins with the Engage component in which

students model phenomena. Next, students complete labs and interactives in the Explore component. Following this is the Explain and Elaborate component, in which students watch an Explain video and complete activities to build content knowledge. Finally, materials assess students' content knowledge through a quiz in the Evaluate component. As another example, the 5E model for the structure of DNA provides content clearly and accurately. During the Engage activity, students discuss the difference between strong and weak bonds. Students analyze data using Chargaff's rule during the Explore activity. The Explain phase provides students with the history of DNA and the Human Genome Project. Students use their Experience Handbook during the Elaborate stage to have discussions on the assigned reading. Students take a quiz during the Evaluate stage that includes scoring notes for the teacher. Also, the SEPs are directly listed in the investigation next to the question for students and teachers to see.

- The materials contain a TEKS Correlations Guide that accurately portrays relevant science and engineering practices aligned to each activity. For instance, TEKS 3.B (communicate explanations and solutions individually and collaboratively in a variety of settings and formats) Is accurately aligned to the Performance-Based Assessment for Investigation 4, in which students examine how plant breeders develop pure and hybrid strains of crop plants.
- In the teacher resource section, “Scientific and Engineering Practices,” the materials provide embedded multiple guiding documents on how actionable items are introduced throughout the units. SEPs are directly addressed at the beginning of each chapter. For example, the document "Introduction to Science and Engineering Models and Communication" outlines the various modeling strategies that can be used with core content to assess student learning. SE of investigations include SEP guiding questions to keep students focused on alignment with TEKS and SEP practices.
- The planning guides for each investigation show the TEKS and SEPs connections in the overview. Investigation 3 provides a preview of the investigation, then includes a TEKS Progression followed by the SEPs, ELPS, and CCRS, all connected to cell growth and differentiation.

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

- The TEKS Biology Correlations include standards aligned to particular investigations and experiences. These TEKS serve as the boundaries for mastery. For instance, the concept of meiosis (TEKS 8.A) is presented in Investigation 4, Experience 3, and is assessed for mastery at the end of Investigation 4.
- Each experience within an investigation contains specific learning objectives aligned to the content presented in the experience, allowing students to self-assess their mastery of the content objectives and to help teachers see and assess where students are. For instance, Investigation 10 (Evidence of Evolution), Experience 1 (The Fossil Record) contains the following objectives: Analyze the types of evidence provided by the fossil record. Describe two methods of dating rocks and fossils. Summarize the geologic time scale. Also within the teacher background is the TEKS progression showing previously acquired information from previous years that directly relates to the new information students are learning.
- The introductory materials include a guidebook on how to assess mastery of content within the boundaries of the course. This includes quizzes and exams, laboratories, and task-based assessments. SE investigations include open-ended, high-level questions that push students to connect and understand key concepts of each unit. For example, in Investigation 11 (Plant Systems) Experience 1 Review, students have four questions to review and describe in their digital notebooks, synthesizing concepts from that investigation.

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- The About this Book resource contains a course planner and pacing guide that lists the experiences. The materials include 16 investigations that show pacing for traditional class periods or block schedules that can be completed within the boundaries of the course. There are student objectives written for each experience within the investigations. For example, each investigation shows the TEKS progression that takes a look back at content students learned earlier to build the connection to the current content. In the investigation on cell growth and differentiation, there is a look back to 6th grade, where students learned that organisms come from preexisting cells to 7th grade, where students learned about sexual and asexual reproduction; and in 8th grade, where students described the function of genes in determining traits. During this biology investigation, students will compare and contrast prokaryotic and eukaryotic cells, explain the importance of the cell cycle, explore cell differentiation, and relate the disruption of the cell cycle to diseases.

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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.

- Each investigation contains an overview with a TEKS Progression section depicting previously learned knowledge. This section identifies concepts related to the investigation that students learned in grades 6 through 8, along with appropriate grade-level TEKS addressed in the investigation. For instance, Chapter 14 (The Biosphere) describes concepts such as interactions between organisms and the flow of energy that students learned in previous grades while also referencing TEKS 13.A, 13.B, and 13.C as key learning objectives for the Investigation. In another instance, in Investigation 15, the previously learned TEKS about symbiotic relationships are explained, and their depth is covered.
- Materials provide appropriate scaffolding for SEPs that are implemented in particular activities. For instance, the teacher guide for Investigation 14, Experience 1, provides a scaffold for data analysis by suggesting that teachers have students articulate observed patterns. In another example, in Investigation 2: Energy in Cells, one SEP Investigation asks, "What type of experiment could you set up to learn more about algae and energy?" allowing teachers to assess current understanding before moving on to new concepts. The student edition is embedded with formative SEPs questions and tasks.

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- Teachers are given a phenomenon to base their teaching around that students have to explain. The teacher is given relevant phenomena and direct instructions to come back to the phenomena during each lesson to build students' knowledge.
- The teacher guiding document "Designed for Texas" includes a breakdown of unit material and guides instructors through vertical alignment of experiences, each sequenced in 5E format. It includes a table of contents that lists each experience, and the TEKS covered, a TEKS progression summary that connects skills learned in grades 6, 7 & 8 to the current Biology TEKS, and a scaffolding scientific and engineering practices feature that includes vertical alignment guidance for the teacher. For example, the TEKS progression for ecosystem stability and change shows how the steps of organizing qualitative and quantitative data are used with modeling and reflecting on the phenomenon after watching the video. There are options to fast-track or review based on prior knowledge and knowledge acquisition, providing teachers with options for implementation within an SEPs scaffold.

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.

- Each Inquiry Lab contains a teacher support document that outlines important background information for teachers. For example, the Inquiry Lab (Comparing the Rate of Respiration to the Rate of Photosynthesis in Algae) background for Investigation 2, Experience 4, describes how respiration, photosynthesis, and pH are linked. This is an important conceptual understanding that teachers need to have before conducting the inquiry lab.
- The Address Misconceptions sections are used as necessary for concepts in the teacher guide. For instance, in Investigation 16, Experience 1, students learn about human effects on the environment. An Address Misconceptions section discusses how students may confuse ecological footprint with carbon footprint, which provides tips to approach potential misconceptions. Another example is within Experience 1 of Investigation 15. Misconceptions about ecological niches are explained to teachers and how to address them. Each experience contains information about potential misconceptions that the teacher can immediately address.
- To guide instruction, potential differentiation ideas are provided to teachers to help struggling and advanced learners. The instructor guide includes an investigation planner for each unit that clearly outlines examples and explanations of science concepts as explicitly outlined in the TEKS. For example, in Investigation 12: Animal Systems, Experience 1: Animal Organization and Homeostasis, there is a clear summary of sequential planning and strategies to overcome learning barriers, including a drop-down box under Explain of common grade-level misconceptions. There are also vocabulary supports to help students create graphic organizers. The quizzes have built-in remediation instructions for mastery. For example, each investigation includes guidance for addressing misconceptions for the teacher. In Experience 1 (RNA and Gene Expression), the guidance explains to teachers that students often fail to appreciate the importance of genetic material other than DNA. It also provides guidance for students who frequently misidentified the products of translation mRNA or amino acids.
- The Standards at a Glance resource outlines the TEKS addressed in each unit and which specific content is directly aligned, supporting teacher implementation that meets state standards.

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

- The Designed for Texas teacher guide provides a rationale for implementing different forms of labs (Inquiry, Virtual, Quick) in the section titled “An Active Classroom.” It also outlines the strategy and sequence for 5E activities. For example, the teacher guide provides a rationale for incorporating anchoring phenomena (including phenomena specific to the state of Texas) in the section titled “A Phenomenal Experience.” Also, the teacher guide explains the materials were written as a new learning model where content organizes learning experiences around phenomena that give students real-world experience. It includes a variety of hands-on and digital activities designed to reach every learner. The new learning model partners with Flinn Scientific to deliver high-quality inquiry labs and allows instructors to personalize their course by selecting from the listed activities.
- The publisher provides an explanation for the use of the 5E model and for phenomena-based learning in their Getting Started landing page.
- In the About This Book section of the teacher materials, the goals of student sensemaking and phenomena are discussed as to why they do the materials this way. All mentions of the materials used have a purpose that is clearly stated for teachers to read.

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Indicator 4.1

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

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

Evidence includes but is not limited to:

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

- The dashboard for the Getting Started section includes an excerpt in the Program Overview called "A Phenomenal Experience." This section has a heading that reads, "Student Sensemaking." This section presents various examples of activities that promote student sensemaking, such as anchoring phenomenon modeling and claim-evidence-reasoning (CER). Students are asked to write and revisit phenomena throughout the experiences that students face. Also, students are asked to complete performance tasks at the end of each chapter. A specific section on building science skills is written into the teacher guide to help students cement their knowledge.
- Each investigation provides opportunities for student sensemaking through reading, writing, thinking, and acting as scientists and engineers. For example, Investigation 5 promotes reading through the guiding text provided for each Explain section of each experience - students read

the text along with the associated video to grow in conceptual knowledge. Investigation 5 promotes writing in the Performance Based Assessment, in which students write an explanation for the process of DNA replication. Investigation 5 also promotes thinking and acting as scientists and engineers in the Performance Based Assessment, in which students simulate the process of DNA replication. Also, in Investigation 14: The Biosphere Anchoring Phenomenon: “Why is this water turning green?" students are able to "think like a scientist" and write a hypothesis based on observations. This investigation is followed by research of different types of algae and applying cause-and-effect scenarios.

- The material encourages students to engage in science and engineering processes through reflection and revision activities. For example, in Investigation 11: Plant Systems Experience 3: Transport in Plants, students are asked to revisit the initial anchoring phenomenon and make adjustments to their CERs, given the new content.

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

- Each experience within an investigation contains specific vocabulary within the Explain section of the Student Experience Handbook that guides student development of content knowledge. For instance, the Student Experience Handbook for Investigation 7, Experience 1 (Human Genetics), identifies the following vocabulary words: genome, karyotype, sex chromosome, autosome, sex-linked gene, and pedigree. Also, in Investigation 1: Biomolecules and Cells, Experience 2: Chemical Reactions and Enzymes, students are presented with a list of content-related vocabulary that goes above and beyond typical vocabulary words. Students are able to read, listen, and think-pair-share examples of key vocabulary. Finally, in Investigation 3 (Cell Growth and Division), the lesson begins with objective statements on cell division and then provides a list of vocabulary words. A prompt reads, "LEARNING- Connect To It: Read aloud or listen to the first two questions in the opening paragraph. Discuss each question with a partner. Use what you know about living things and how they grow. ELPS 1.A.1," which provides opportunities for students to engage with the text to develop a deeper understanding of the concepts.
- Investigations may contain assessments that challenge students to read scientific text and analyze data in order to think and act like scientists and engineers. For instance, in the Investigation 13 (The Challenge of Disease) assessment, students read background information about the presence of malaria in South Africa. They must interpret graphs showing the number of malaria cases and deaths each year in South Africa. Using the text and graphs as evidence, students must answer questions such as "Describe the pattern in malaria cases and deaths shown in the graphs" and "A scientist claims that improved mosquito control caused the decrease in malaria in South Africa. Use the data shown in the graphs and your knowledge of malaria to evaluate this claim." Also, in the Editable Investigation Test: Biomolecules and Cells, students apply comprehension of new vocabulary through written-response and interpretation of infographics, utilizing new terms in either multiple-choice or short-answer submissions.
- Students are given a workbook for every experience with the vocabulary words underlined and an audio version of the text. Scientific texts are found throughout this experience handbook with textbook passages, scenarios (such as invasive moth species in Boston), and relevant examples. For every larger passage of reading, vocab support is given to the teacher and the student. For example, in the reading on ecological niches in Experience 1, students are advised to make a concept map for vocabulary. All new vocabulary is brightly highlighted and can be

accessed anytime during the reading. The teacher guide encourages teachers to use the Frayer Model to help students with vocabulary.

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.

- Each investigation begins with an anchoring phenomenon with which students will link their conceptual knowledge as the Investigation progresses. Students have opportunities to communicate their ideas for the anchoring phenomenon through written expression and modeling. For instance, the anchoring phenomenon for Investigation 7 (The Human Genome) poses the question, "Why do some people have extra fingers and toes?" Throughout the unit, students will add to their model of this question through written expression and images. Also, in the student edition of Investigation 1: Biomolecules and Cells, Experience 1, the Biomolecules of Life, Revisit Anchoring Phenomenon, eText: The Molecules of Life, students are prompted to explore the relationship between ATP and bioluminescence and dinoflagellates, requiring demonstration of both pictorial interpretation and written responses. Finally, in the Revisiting Anchoring Phenomenon eText: Control of the Cell Cycle, students revisit the model of the sea star they developed in a prior part of the lesson and reevaluate it by answering, "What role do cyclins play in the regrowth of a sea star's limb?"
- Each investigation contains an Inquiry Lab that allows students to carry out an experiment and represent their findings through written expression and graphics. For example, in Part 1 of the Open Inquiry Lab on DNA, students develop a model of DNA using color-coded pop beads. In Part 2, students research the structure of nucleotides to determine base pairing rules. In Part 3, students perform DNA replication by pulling the hydrogen bonds and finding the complementary base pairs. In Part 4, students select one of the enzymes involved in DNA replication and research its role. After students build their models, they are asked a series of questions that range from summarization, evaluating the limitations of models, to performing mathematical calculations, to applying scientific reasoning. Also, the Inquiry Lab for Investigation 8, Experience 2 (Applications of Biotechnology), is titled "Using Bacteria to Clean Clothes?" and challenges students to investigate the efficacy of bacteria for cleaning clothes - students use the data that they collect during the experiment to develop graphs and answer written questions.
- Within each experience, students are given an online notebook called the experience handbook. This has separate sections for students to answer various embedded questions and jot down any thoughts. Students are also encouraged to take separate notes on paper to build explanations. At the end of each experience, such as at the end of Experience 2 of Ch. 15, students are also asked a variety of reflection and comprehension questions. Also found within Experience 2, students are asked to create a T-chart on paper detailing the differences between primary and secondary succession. This is one of several examples of students being asked to demonstrate and deepen their understanding.
- The material blends written and graphic modes of content understanding aligned with core content and Texas standards. In Investigation 1: Biomolecules and Cells Experience 2: Chemical Reactions and Enzymes Chemical Reactions, students are prompted to interpret energy/reaction graphs and to document their thought processes in writing.

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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.

- Each investigation contains a Performance Based Assessment in which students may apply their content knowledge to new contexts. This is especially important for promoting authentic student engagement through productive struggle in science and engineering practices. For instance, in the Performance Based Assessment for Investigation 15 (Ecosystem Stability and Change), students develop and use models to represent the growth of a population of species within Yellowstone National Park. Students utilize their content knowledge of ecosystem changes from the Investigation as a foundation. Students research different species within Yellowstone National Park and discover predator-prey interactions, along with relevant population sizes. Then, students develop population size models and measure how the population's carrying capacity changes over time. Similarly, students prepare a model to determine if molecules, ions, and water move through selectively permeable membranes. They collect quantitative evidence, discuss the advantages and limitations of models, and explain their experimental investigation.
- Each investigation begins with an anchoring phenomenon and SEP-oriented tasks with which students will link their conceptual knowledge as the Investigation progresses. This includes interpreting infographics, collecting data (qualitative and quantitative), CERs, developing an explanation, etc. One instance of this can be seen in the anchoring phenomenon for Investigation 6 (RNA and Gene Expression), which begins with a video paired with a question: "How did these tadpoles come to be so different from each other?" Students begin by watching the video and completing a reflection question on their associated CER (Claim-Evidence-Reasoning) worksheet. Throughout subsequent experiences, students revisit the anchoring phenomenon and revise their models based on their new conceptual knowledge. Once students reach the end of the Investigation, they have a final opportunity to refine and revise their models and discuss their results with their classmates. Another example is in Investigation 15, where students are asked, "How has this ecosystem changed?' and given photo and video evidence of the changes that have occurred in Yellowstone after a certain amount of time. Students are asked to assess the reintroduction of wolves to Yellowstone and its impact on ecological change. While related, this phenomenon is different; students must apply previous knowledge of food webs and ecological niches to help them explain what is happening.
- The addendum, "Introduction to Science and Engineering," includes four guiding documents on science and engineering processes. These documents systematically illustrate the nature of inquiry and measurement, data analysis and calculations, and models and communication. With these strategies in mind, students can fully participate in productive struggle and sensemaking of phenomena.

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Indicator 5.1

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

1	Materials prompt students to use evidence to support their hypotheses and claims.	M
2	Materials include embedded opportunities to develop and utilize scientific vocabulary in context.	M
3	Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and 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 criteria for this indicator. Materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

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

Evidence includes but is not limited to:

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

- Each Investigation (such as Investigation 1) contains a modeling worksheet used when the anchoring phenomenon is presented at the beginning of the Investigation. This worksheet acts as a scaffold for students to develop their usage of evidence to support a hypothesis or claim. The worksheet is separated into sections about asking questions, developing models, using models to generate a hypothesis/claim, evaluating limitations of models, and critiquing and revising models. For example, at the beginning of Investigation 3, students are given a worksheet to help them develop and build their models of the anchoring phenomena. During it, they are encouraged to think about the questions they have and the models they must build. Students are encouraged to rethink and rebuild their models as they progress through the chapter. At the end of each experience, students are encouraged to revise their explanations of limb regrowth using newfound evidence. Finally, the "Claim-Evidence-Reasoning: Using Evidence to Explain a Phenomenon" worksheet explains to students how to develop evidence-based arguments. It includes guiding questions and a detailed framework. It extends the

practice by having students evaluate and revise their argument after sharing it for critique by a classmate.

- The Analyze and Interpret Data sections of the Investigation assessments prompt students to use evidence when supporting a claim. For instance, the Analyze and Interpret Data section for the Investigation 16 Assessment provides students with a graph illustrating changes in global surface warming over time based on different carbon dioxide emission scenarios. One question prompts, "Based on patterns you see in this graph, what will happen to global temperatures if carbon dioxide emission experiences low growth for the rest of the twenty-first century?" Students are specifically prompted to use evidence from the provided graph to support their claims.
- Students are engaged with the material by systematically participating in active investigations, including constructing a hypothesis and investigating claims. For example: in Investigation 13: The Challenge of Disease, SEP Investigation Assessment #45, students hypothesize/explain how a mold species has evolved a way to kill bacteria. Also, in unit 333, students interpret authentic data (SOURCE: Pre-1962 data from Poliomyelitis. U.S. Department of Health, Education, and Welfare. Public Health Service. Health Information Series, No. 8. Public Health Service Publication No. 74, 1962 from Centers for Disease Control), complete a SEP Evaluating a Solution and are encouraged to construct a counter-argument. These are all examples of using collective evidence to support a claim.

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

- The Experience Handbook offers teachers strategies and resources to help develop and utilize students' scientific vocabulary. Some sections within the Experience Handbook for a lesson contain a prompt titled "While You Read" that encourages students to engage with relevant information related to vocabulary and concepts. For instance, the "While You Read" section under Changes in Land Use in Investigation 16: Experience 1 prompts students with the question, "How does human activity impact land use?" and instructs students to "use the headings in this section to make an outline about land use. As you read, fill in phrases after each heading that provide key information." Also, in Experience 1 of Investigation 3, students are encouraged to speak using scientific words to explain to a partner the role that cell division plays in their lives. They are asked to give three examples of where cell division occurs in their lives. Targeted vocabulary supports, such as sentence stems, are presented for those who need it. Finally, the teacher guide prompts teachers to look at the first page of the Experience Handbook for vocabulary terms and to assign the reading day before they plan to discuss the topics in class and then follow up with any of the suggested instructional strategies to help students make sense of the images and text on the indicated pages as well as to practice TEKS mastery. The answer key provides clarity on the activities to best guide teachers.
- The material uses multiple representations to help develop scientific vocabulary in context. For example, in the Experience Handbook in Investigation 1, Experience 2, enzymes are described using multiple representations. Enzymes are presented as a biological catalyst, which is explained in a sidebar of the text. Enzyme activity is presented in one diagram showing the progression of a reaction through changes in energy levels and a separate diagram showing how reactants are manipulated to form products. Finally, students are prompted with the following question at the end of the section to use their newly acquired vocabulary: "How can an enzyme affect chemical reactions that occur within a cell?"
- The Investigations present new scientific vocabulary at the beginning of each Experience. The pre-teaching opportunity includes the term, definition, and oral pronunciation (although the

term "epidemic" in Experience 3 includes the incorrect definition and uses the word "predation" instead). Students are encouraged to use this new vocabulary throughout the experience, both in reading the text and also while completing activities: this includes interpreting diagrams with the new vocabulary, and also while reflecting on content, using new vocabulary in their own personal writing (Example: visual Analogy: Ecological Footprint). Also, in Investigation 7, the text defines sex-linked genes. It includes a vocabulary note on academic words: "The noun 'consequence' means 'a result or an effect of a condition or an action. One consequence of the Y chromosome having so few genes is that recessive alleles on the X chromosome are expressed in males. A consequence of having two X chromosomes is that females do not show recessive X-linked traits unless they inherit two recessive alleles." Then the text shows images plus Punnett squares to add additional clarity. During the Experience Review at the end, students use the information they learned to "Explain: How are recessive traits inherited when multiple alleles or sex-linked genes are involved?"

- The material also includes tips and suggestions to help students decode new or unfamiliar terms. For example, in Investigation 13: The Challenge of Disease, Experience 3: Emerging Diseases and Pandemics COVID-19: A Continuing Challenge, there is a header highlighting the importance of prefixes for new or unfamiliar vocabulary and explaining how to use prefixes. This experience also encourages students to distinguish between similar words by identifying different meanings (pandemic vs epidemic).

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

- Students are provided with a Claim-Evidence-Reasoning (CER) worksheet at the beginning of each Investigation, which supports their development of an argument/discourse that they will share with their classmates. The worksheet contains sections that aid students in developing evidence-based arguments and evaluating and revising arguments based on feedback. For example, in Investigation 9, students watch an Anchoring Phenomenon video on how an insect's appearance improves its chance of survival and reproduction. Then the teacher is provided the following guidance, "Claim-Evidence-Reasoning: To help build students' understanding of the video, brainstorm a list of questions about the observed phenomenon. Have students complete Question 1 of the CER worksheet and start thinking about the evidence they need to answer their question. Discuss with students what an insect's predators are and how the insect pictured might avoid predators."
- Another example is when revisiting the anchoring phenomenon on RNA and protein synthesis, the students are instructed to "Go back to the CER worksheet you started at the beginning of the Investigation. Add new information to your worksheet based on what you learned in this Experience. Do you think that patterns of gene expression and protein synthesis are identical in the two forms of tadpoles? If not, how might they differ?"
- Students are given opportunities throughout the Investigation to revisit the anchoring phenomenon and develop arguments that support their models. For instance, at the end of Experience 3 in Investigation 3, students are prompted to provide an answer and supporting evidence to the question of whether adult or embryonic stem cells are more likely "to differentiate into a completely different kind of cell."
- Grouping strategies are used to help provide students with opportunities for argumentation and discourse. For example, in Experience 2, students are asked how they think immunotherapy drugs will affect cancer research and then arranged into groups to discuss their thoughts. Also, in Investigation 3, students are asked to build a model explaining how they think the starfish

limbs will grow back. After that, they are asked to review another student's model, think about the benefits and limitations of it, and discuss it with their partner.

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.

- Some Performance-Based Assessments contain sections that specifically address constructing and presenting an argument and provide criteria for evaluating arguments. For instance, the Investigation 10 Performance-Based Assessment prompts students to evaluate evidence from the K-Pg Boundary to construct and present an argument about two competing hypotheses regarding the mass extinction of the dinosaurs. Students are provided with an evaluation rubric that serves as criteria for developing their argument. Also, during Investigation 13, students engage in a performance-based assessment on developing vaccines. After reading the background context, students first define the problem that vaccine developers must solve. The students look online for research on vaccines using updated technology. Next, students relate the impact of current research on society by comparing benefits and costs. During the last stage of the assessment, students work in pairs or groups and use engineering practices to design a new vaccine or improve an existing one. Finally, the performance-based assessment for gene therapy requires students to communicate solutions on why gene therapy would be a promising treatment for people with disorders caused by a single gene. Then, students research more about the gene therapy treatment that was given to Jesse Gelsinger. The students define the problem by answering, "Jesse was the first reported patient to die during a gene therapy trial. Based on what you read, did the field of gene therapy head in a different direction after Jesse's death in 1999?" Next, students obtain information by examining current developments in gene therapy and comparing how edited genes are introduced into the genomes of patients. Lastly, students evaluate and communicate a solution with their group by making a 10-minute explanation video.
- When presented with an anchoring phenomenon, students are provided with a Claim-Evidence-Reasoning (CER) worksheet. This worksheet acts as a scaffold to aid students in constructing and presenting verbal or written arguments about the phenomenon. One section of the CER worksheet prompts students to present their argument to a classmate, receive feedback, and revise their argument.
- All modules are grounded in anchoring phenomena referenced frequently throughout the unit and embedded in SEP activities. For example, for Investigation 16: Human Impact on the Biosphere Experience 2: Biodiversity and Environmental Change, Experience 2 - Review, in lesson reviews 14-18, students explain, analyze, elaborate on, and construct an explanation. Also, in Experience 3 of Investigation 3, students are asked to explain how cells differentiate from each other. As the experiment continues, students are asked to expand their explanations to the different cells that make up their bodies. In the Analyzing Data portion of Experience 3, students are asked to explain why studying and analyzing C. Elegans is good for teaching scientists about all cells, including human cells.

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Indicator 5.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Each Investigation contains an Investigation Answer Key that provides exemplars for every question and Check for Understanding section. These present possible student responses that are scaffolded through various prompts (such as Support English Learners, Address Misconceptions, ELPS Targeted Support, etc.). For instance, in Investigation 3 Experience 1, students learn about the importance of cell division to the growth of organisms. The Experience Handbook poses the question, "Explain why cell division is important to the growth of organisms." The ELPS Targeted Support section provides specific scaffolding to deepen student thinking through the use of partner discussion and sentence stems that prompt students to consider "the role that cell division plays in their lives." Once students reach a conclusion, the Investigation Answer Key provides the following answer: "Cell division is important because it can replace damaged cells and also adds additional cells to the organism, allowing it to get larger."
- The teacher edition contains a section in each investigation titled "Common Misconceptions" that preemptively informs teachers of key content that might need further clarification or investigation. Teachers can then refer to the "Experience Handbook" resource, where a variety of probing questions are embedded in various scenarios, case studies, and analogies that teachers are directed to share with students. These questions provide teacher guidance for

aiding students in building on their thinking. For example, in Investigation 3, Experience 1, students learn about the ratio of surface area to volume in cells. Teachers are prompted to ask, "What happens to the ratio of surface area to volume as the edge length of a cube grows?" After receiving an answer (the ratio decreases), teachers are prompted to follow up by asking, "What problems do cells have when the ratio of surface area to volume becomes too small?" These scaffolded questions aid students in building on their thinking. Also, in Experience 1 of Investigation 9, common student misconceptions are addressed, such as students may think evolution leads to perfect organisms. These misconceptions are identified with ways to remedy them by clarifying vocabulary and asking leading questions for the student. Additionally, students are given a video and asked to explain the variation in orchid plants based on their pollinators. Teachers are specifically given questions to help students along, such as, "Do you think the same type of pollinator feeds on each of the types of orchids? Why or why not?"

- The materials provide teacher support in guiding student thinking through question and response strategies. For example, in Investigation 14: The Biosphere, Investigation 14: Encounter, the material contains an explicit reference to predicting and guiding student struggle while exploring the guiding question, "If students struggle, guide them to use what they have observed in the video and the first part of the modeling activity to answer the driving question. Additionally, at the end of each experience, direct students to complete Revisiting the Anchoring Phenomena prompt, which guides students in connecting the experience concepts with the phenomenon." Similarly, “Revisiting the Anchoring Phenomenon for Evidence of Evolution” provides the following guidance for teachers: " Review how homologous and vestigial structures provide evidence of common ancestry. Ask- How many legs do whales have? (Most students will say none.) If any students respond "two," lead them to explain that whale flippers may be modified legs. If all students say "none," ask them whether they're sure about that, then ask - Do penguins have wings? (yes) Can penguins fly? (no) What do penguins use their wings for, then? (as flippers for swimming).

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

- The beginning of each Investigation in the Teacher Guide contains a section titled Vocabulary Support, which provides recommendations for scaffolding and supporting student vocabulary development. This includes strategies for emerging bilingual students. For example, in Investigation 14: The Biosphere Encounter, students are encouraged to construct an "evergreen" food web based on current understandings; students frequently return to (and update) their webs as new knowledge is acquired. ELP support suggests teachers let emerging bilingual students initially use their native or preferred language, then iteratively update it as part of the sensemaking process. In addition, the Vocabulary Support section for Investigation 7 (The Human Genome) reads as follows: "As students encounter new vocabulary in investigation activities, have small groups visually represent terms illustrating the connections between existing conceptual knowledge and new vocabulary by constructing physical or digital models. Groups should revisit and revise their builds as their understanding grows. Support for English Learners: Group students based on the needs of your classroom. Sometimes you may wish to group students of the same preferred language so that they can collaborate and use an online translator to prepare a shared reference vocabulary list with translations. Other times you may wish to group emergent bilinguals with different preferred languages to provide an opportunity to learn from other classmates. Be sure to limit the size of the groups so that every student has the chance to be fully engaged with similar student support." Finally, the activity in Investigation

11 includes the statement, "Word Classifying: As students encounter new vocabulary in investigation activities, have small groups create charts classifying words into different categories, such as by root word, by characteristic, or by concept. Encourage students to relate new words to known concepts from outside the science classroom and add known concepts to their organizers. Graphs and charts can use manipulatives or can be created digitally. As new words are encountered, the charts can be revisited and revised by adding more columns or rows."

- The Experiences resource contains sections titled Differentiated Instruction that provide recommendations for scaffolding vocabulary development and use in context. For instance, the Differentiated Instruction section for Investigation 6, Experience 1, offers support for special needs students and struggling students. The support for special needs students prompts the teacher to divide students into groups and instruct the groups to develop skits that describe the different types of RNA. The support for struggling students prompts the teacher to suggest that students make a flowchart showing the sequence of steps in the process of RNA synthesis, including simple sketches. Also, in Experience 2 of Investigation 9, teachers are given several vocabulary acquisition and development supports. The sample student questions for teachers begin with word and definition responses and then get stronger as students learn to use such terms as allele, frequency, and selection. Targeted vocabulary supports are added, such as creating a concept map. There are also several opportunities within the Experience for students to practice their new science vocabulary in context. For example, students are asked to reflect on how to add new genetic frequency evidence to their explanations about the leaf bug. Finally, in the Biosphere Differentiated Instruction section, guidance is provided for teachers to support less proficient readers, " This experience contains several new vocabulary terms. Pre-teach the terms before students begin reading the Experience Handbook. As they read, have students use index cards to make flashcards for each term, with the word on one side and the definition on the other. Then, encourage pairs to quiz each other with their flashcards as they continue to work through the experience."
- The materials include Investigations taught using the 5E model. In the Explain/Elaborate section, opportunities for teachers are provided to utilize scaffolding to build vocabulary in a meaningful context. For example, in Investigation 14: The Biosphere, Experience 1, teachers are encouraged to have students review key content through the Explain video and then allow students to use content-specific language in a writing task. The rigor of incorporating vocabulary is also differentiated: sentence stems are provided to help teachers support struggling students, while a more complex writing prompt can be assigned for advanced students. Both versions require students to demonstrate an accurate understanding of newly acquired vocabulary and promote "thinking like a scientist."

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

- The "Revisit Anchoring Phenomenon" section in the Investigations contains instructions in the Teacher Guide along with a question and answer in the Investigation Answer Key. At the very end of the investigation, teachers are given a general assessment and overview of the expectation that a student's explanation and use of scientific evidence get stronger over the investigation. For instance, there are three total Revisit Anchoring Phenomenon opportunities during Investigation 4 (Inheritance and Variation of Traits). The first Revisit Anchoring Phenomenon prompts teachers to "ask students to explain the difference between a dominant trait and a recessive trait" and "have students select the pea trait of their choice from the

diagram Mendel's F1 Crosses. Challenge them to draw a Punnett square in their notebook that shows how two individuals with the dominant phenotype for that trait might produce offspring with the recessive phenotype. Ask them to jot down ideas in their notebook that relate the Punnett square to the Anchoring Phenomenon." Following this, students complete a question in their anchoring event modeling worksheet and add relevant evidence. A guiding question for teachers to use for this opportunity can be found on the Investigation Answer Key document: "How could a Punnett Square help you explain how two green parents can produce parakeets of other colors?" Finally, in Investigation 13, the anchoring phenomenon asks, "Why do I need a flu shot every year?" The following guidance is provided: "Claim-Evidence-Reasoning: To help build student's understanding of the video, brainstorm a list of questions about the observed phenomenon. Have students complete Question 1 of the CER worksheet and start thinking about the evidence they need to answer their question."

- The “Build Science Skills” sections of Performance-Based Assessments in the Teacher guide provide support for teachers to aid students in supporting student discourse and using evidence to construct claims. For instance, two Build Science Skills opportunities exist for the Investigation 15 Performance-Based Assessment. Students use data to build models of population change over time. The first Build Science Skills section prompts the teacher to remind students about carrying capacity within an environment and provides a question that asks students to consider "what happens close to the carrying capacity... and farther away from the carrying capacity." The second Build Science Skills opportunity prompts the teacher to propose that a third variable may be affecting population growth and challenges students to explain how a third variable could affect both populations. Also, in the Engage activity in Experience 3 of Investigation 9, the teacher leads an entire class discussion about the model that they are creating and what it represents. To foster student-to-student collaboration, the performance task is meant to be done in pairs as the students are asked to create charts for their fellow classmates to understand. Quick professional development for developing collaboration is written below the activity in the teacher guide.
- The materials guide teachers in the process of facilitating student discourse individually and in groups, where collecting and providing evidence is the focal point of written and verbal reasoning. Opportunities for students to demonstrate the relationship between evidence and conclusions, and to communicate their findings in both oral and written format, are embedded in each investigation. Teacher instructions commonly focus on using SEP strategies to facilitate this process. For example, in Investigation 11: Plant Systems, Experience 1: Plant Systems and Interactions, teachers are encouraged to have students create a CER working document based on the anchoring phenomena and driving questions, allowing students to update their CER throughout the 5E process. During each stage of 5E, teachers also ask probing questions with student responses as either whole-class or small-group discussions. These strategies support holistic communication and student sensemaking, where students are reading, writing, and speaking as scientists. In another example, the following statement is given: "Develop Classroom Collaboration: Have students form teams and debate the ethical aspects of the medical uses of CRISPR. Be the proctor for this debate and encourage students to exchange ideas and rebuttals in a respectful manner throughout the debate. Review the rules for classroom debate beforehand: Introduce the topic. Assign students to the pro and con sides of the debate. Provide time for students to research the topic. Keep track of time. Two-minute intervals are often sufficient for argument and rebuttal. Choosing a winner of the debate is not necessary in this case. The goal is to encourage students to organize their thoughts and present them verbally."
- The material helps teachers formatively assess student engagement (and mastery) by communicating the relationship between evidence and reasoning. This directly supports

teachers in adapting both pacing and instructional strategies through a variety of differentiated methods. For example, in the teacher edition of Investigation 12: Animal Systems, Experience 1: Animal Organization and Homeostasis, the "on-the-spot" assessment section provides teacher guidance on how to implement probing questions and encourages student dialogue through both written and verbal responses.

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

- The Experiences resource contains a section titled "Assess on the Spot" that provides guidance for facilitating the sharing of students' finding solutions. For instance, one of the Assess on the Spot sections for Investigation 14, Experience 1 prompts, "After watching the Visual Analogy animation, give students 1 minute to respond in writing to this prompt: Although continuing to add greenhouse gases to the atmosphere is resulting in climate change, give one reason why the greenhouse effect is not entirely bad. (Without the normal greenhouse effect, average temperatures on Earth could be considerably colder than they are today.)."
- The anchoring events for each Investigation contain guidance for engaging students' thinking and facilitating sharing of students' finding solutions through prompts in the Inquiry Launch of the Encounter section. For instance, the Inquiry Launch for Investigation 14 states, "After students view the video about algal blooms, relate the video to the experiences of students in the class. Some students may have observed water that is cloudy versus clear and the odor associated with the cloudy water. Get students thinking about the modeling task by asking questions like 'How do you think this happens?', 'What would you need to find out to fill in the details about your model?', 'What kind of information would help support your model?', and 'What kinds of information would indicate your model needs to be revised?'" Another example is in the Engage portion of Experience 4 of Investigation 9, where students are asked to devise a solution for how and why adaptive radiation occurred in several species. First, they look at an ancestor and then make predictions about what happens next. The teachers are given leading questions to get students to understand that new ecological niches are open, so many adaptations can be considered fit for the environment. Also, in the Explore section for Investigation 13, teachers are provided the following guidance, "After students complete the Interactivity, give them 1 minute to respond in writing to this question: What are two things communities can do to control a cholera epidemic? Collect students' answers and review to ensure understanding. If necessary, remind students that people can boil drinking water and wash their hands more frequently to combat a cholera epidemic."
- Teachers are specifically given guidance to support both struggling and advanced students. For example, in the inquiry investigation in Experience 4 of Investigation 9, the lab can be open, guided, shortened, or advanced. Within each option, differentiation instructions are handed out to teachers to help their students complete the same lab with different supports and ideas for how to implement these supports to create the best beak model for their food type. Also, in Investigation 2: Energy in Cells, Experience 1: Energy and Life: Experience 1, the Interactivity is embedded with modified instructions for pacing and share-out options. Teachers can select "more open-ended" or "more guided" approaches to supporting students' thinking and solution-brainstorming. Finally, during Investigation 1, the teacher is provided the following classroom modification guidance: "Based on your students' abilities and your schedule, you may wish to make the interactivity more open-ended or more guided." The more guided statement says, "As students work through the Interactivity, display the information on salivary amylase, pepsin, and thermophilic bacteria where students can easily refer back to it. Highlight the pH and

temperature conditions in which each enzyme thrives to help this information stand out." The Assess on the Spot activity asks, "After students have completed the Interactivity, ask: What are substrates? How do enzymes interact with their substrates?"

- The material provides prompts for teachers to help students personalize and internalize key content through their "Take It Local" section. These embedded opportunities allow students to brainstorm solutions that are personally relevant and shareable with their peers. This approach fosters meaningful communication and encourages the "perspective of others" as students "think like scientists" and share feedback with peers.

Savvas Learning TX Miller & Levine Experience 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 criteria for this indicator. Materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.

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

- Each Investigation provides an option to use a traditional test or performance-based assessment as the summative assessment. For instance, teachers can use either a traditional test or a performance-based assessment in which students model DNA replication for the Investigation 5 (DNA) summative assessment.
- The teacher materials include a variety of assessments that aid in diagnostic, formative, and summative evaluations. These tools are also presented in multiple formats, addressing different learning modalities. For example, there are "Assess On the Spot" questions that are suggested to the teacher to ask for quick and immediate assessment. The teacher is prompted to ask students a question about the assignment to judge what they are thinking and can guide them to the answer. Also, in Investigation 2: Energy in Cells, Experience 1: Energy and Life, the On-the-Spot assessment, Interactivity, and Quick Labs all prompt students to submit written or verbal submissions, as well as teacher guidance on how to modify or reteach content based on student response. Summative quizzes are fully editable, allowing teachers to adapt questions to better meet student needs. Another example is in the “Assess on the Spot” section for the Experience Handbook portion in Investigation 9 Experience 2, which provides the following opportunity for gauging student understanding: "Give students a couple of minutes to respond to the following

question in writing: If the average height of human males increased from 163 centimeters in 1900 to 172 centimeters in 1980, what type of natural selection does this display?" Additionally, during the Interactivity on meiosis, the Assess on the Spot states, "Give students 2 minutes to respond to this question: How would you define recombinant frequency in your own words? Collect students' answers and review them to ensure understanding. If necessary, review the last two slides before moving on to the next activity in the experience." Finally, in Investigation 5, teachers are given several forms of a formative chapter assessment. There is an editable chapter test, a performance task, and book questions that students can complete and be graded on using a rubric.

- The materials also evaluate prior knowledge and learning progress through anchoring phenomena. In each investigation, students complete a CER worksheet that they refer to and update as new knowledge and skills are acquired. This allows both teachers and students to reflect on the learning process, address misconceptions and adapt instruction throughout the unit.
- The 50 questions found on the TEKS Practice Test can be used in a diagnostic manner for teachers to assess what concepts students already know or are struggling with.

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

- The Teacher Guide provides an overview of all TEKS that will be assessed in a given Experience within an Investigation. For instance, the TEKS that are assessed in Investigation 9 Experience 1 are TEKS 10B, SEP 1H, and SEP 4B. Also, the interactivity part of Experience 2 specifically identifies TEKS B.6A as being assessed by the teacher and is found within the material.
- The Teacher Guide provides the TEKS correlations for the Performance-Based Assessment within each Investigation's Investigation Assessment overview section. For instance, the Investigation 13: Investigation Assessment overview section states that TEKS 1A, 1B, and 3B are covered in the Performance-Based Assessment.
- The TEKS Biology Correlation guide describes each benchmark and where the standard can be found in the materials. This quick and easy-to-use guide helps teachers with the implementation of assessments and ensures alignment of course content and evaluation.
- Each Investigation includes a planner outlining the structure and sequence of each unit, including opportunities for student assessment. These evaluations are introduced in the initial anchoring phenomena and embedded throughout each stage of the 5E instructional process. Teachers can also preview assessment options under the tab "Investigation Assessments'', where unit exams, performance tasks, and experience handbook reflection activities are listed. For example, the planner for Investigation 2 shows TEKS 11A being covered for Experience 1, TEKS 2B, 11A, and 11B, as well as ELPS 2.D and 3.F for Experience 2, ELPS 3.D for Experience 3, and TEKS 1B, 1E, 2B, 11A, and 11B as well as ELPS 4.G for experience 4. Each investigation includes multiple formal and informal assessments that match the TEKS and ELPS. Also, TEKS are written at the top corner of every page a teacher and student can click on. The page governing Experience 2 of Investigation includes four relevant TEKS, B.1F, B.6A, B.7A, and B.11B, with a pop-up explaining each TEKS.
- The answer key for each assessment shows the corresponding TEKS. For example, the answer key for Animal Systems shows the TEKS alignment (12A), DOK level, and correct answer(s).

Savvas Learning TX Miller & Levine Experience Biology

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

- The TEKS Practice Tests incorporate science and engineering practices into conceptual questions. Science and engineering practices that are present in the Practice Tests include, among others, evaluating models, analyzing and interpreting data, and performing calculations.
- Each Investigation Assessment contains a traditional test that incorporates several science and engineering practices. For instance, the Investigation Assessment for Investigation 2 includes sections of questions addressing constructing explanations, using and evaluating models, analyzing and interpreting data, reading and writing about science, and defending claims.
- Every performance-based task includes the SEPs right before the question is asked or the student is given a task to do. For example, the mRNA performance task for Investigation 6 asks students to form a hypothesis, conduct internet research, and communicate explanations. In another example, the performance-based assessment on wind turbines allows students to engage in scientific practices such as conducting research and evaluating models and connecting them to the content of human impact on the biosphere.
- All investigations are anchored in relevant phenomena. For example, within Investigation 6, students are expected to explain the phenomena of why tadpoles from the same parents look different. As they go through the chapter, they are asked to modify their explanation using a provided template that provides SEPs next to the relevant question. The question asks students to construct a written argument, which is also one of the SEPs.
- The instructional materials include embedded assessments in each investigation via differentiated activities. For example, in Investigation 2: Energy in Cells, Experience 2: Cellular Respiration Explain/Elaborate, students are provided with scientific and engineering connections by comparing models. Student responses to discussion questions can help guide teachers in follow-up, either clarifying misconceptions or assigning extensional opportunities for learning. Also, Investigation 8 has an open inquiry lab on enzymes that also focuses on the following scientific practices: 1E- Collecting Data as Evidence, 2B- Analyzing Data, 3A- Developing Explanations, and 4A- Analyzing, Evaluating, and Critiquing Scientific Explanations.

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

- Each Investigation Assessment includes a section titled Analyze and Interpret Data in which students use content knowledge and science and engineering skills to answer novel questions. For instance, in the Analyze and Interpret Data section of the Investigation 14 Assessment, students utilize a graph to analyze the effect of average annual rainfall on plant productivity (measured in the rate of plant tissue production). The Investigations also contain activities within Experiences titled Analyzing Data. These activities provide students with data and ask for them to use their previous knowledge to interpret the data. For instance, the Investigation 3 Analyzing Data activity provides students with data related to cell differentiation in a model organism.
- Students are asked to complete performance tasks within lessons where they apply their new knowledge to a brand-new situation. For example, within the Investigation 6 performance task, students are asked to assess mRNA as a drug using what they already know about it. Similarly, within the Investigation 6 textbook assessment, students are asked to compare the mutations that comic book characters undergo versus what they already know. This is a familiar situation that is relevant to the students and asks them to use their new knowledge to explain to a friend what they mean. In another example, the performance-based assessment on cell division requires students to decide if Paclitaxel is a drug, poison, or both. The activity allows students to

interpret visuals, support their explanation with evidence, ask questions and develop a model to support their evidence.

- The materials approach to learning anchors each unit in an observable phenomenon. Student materials assess comprehension of the driving mechanism of introductory phenomena and, later, evaluate student understanding with follow-up questions of a new (but related) phenomenon. This provides valuable feedback to teachers on how students transfer knowledge to new scenarios.
- The materials provide a "Take it Local," section, allowing teachers to share real-world, authentic applications of the unit content. For example, in Investigation 2: Energy in Cells, Experience 1: Energy and Life, it is suggested that students visit an outdoor area or botanical garden and apply new knowledge and skills in the identification of autotrophs and heterotrophs. Based on student responses in these teachable moments, teachers can assess the level of understanding and opportunities for deeper connections.

Savvas Learning TX Miller & Levine Experience 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 criteria for this indicator. Materials include guidance that explains how to analyze and respond to data from assessment tools.

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

Evidence includes but is not limited to:

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

- Each Investigation's Performance-Based Assessment contains an answer key that includes a rubric for evaluating student answers. The rubric provides guidance for scoring student answers based on "evidence," "concepts," and "organization." The performance task for Investigation 1 comes with a rubric for students and teachers to see how they are graded with levels of proficiency. For instance, in order to earn full points on the organization section, students must have a "paper or presentation [that] is well-organized and has few or no grammatical errors." Also, during the investigation assessment on Plants, the students are provided the following prompt, "Describe the movement of materials through the different plant structures shown in the model at locations 1, 2, and 3 in the diagram. Be sure to identify the materials that are moving through the plant in your response." In addition to providing a sample answer, the teacher guide includes a scoring rubric to assist with evaluating student responses, "Scoring Rubric: 1 pt: Student describes how water and minerals are taken in through the roots and create root pressure. 1 pt: Student explains how transpiration moves water and minerals up through the xylem in the stem. 1 pt: Student explains how water is lost from the leaves. 1 pt: Student describes the pressure-flow system in the phloem."
- Each Inquiry Lab includes an associated Teacher Support document that provides possible student answers. For instance, the Inquiry Lab Teacher Support document for the Classification

and Phylogenetic Trees lab in Investigation 9 provides sample phylogenetic trees that students may generate during the lab. Also, in Investigation 2: Energy in Cells, Experience 1: Energy and Life, Quick Lab, the materials provide open-ended responses that allow teachers to assess the level of student understanding. In the "How do Organisms Capture and Use Energy" activity, student short-answer submissions help instructors redirect or reteach concepts based on student responses.

- The materials include frequent and varied "check-ins" for student understanding, embedded in various parts of each unit. For example, in Investigation 2: Energy in Cells, Experience 3: Fermentation, an "on-the-spot" assessment checks for student understanding, allowing teachers to evaluate student comprehension in real-time and modify instruction for future planning.

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 Getting Started with Texas Miller & Levine Experience Biology page provides a video titled "Data Overview Video," which provides information about using the online platform tools to analyze and interpret assessment data. For instance, there is an option to view class mastery by standard, which includes individual student data about mastery of standards.
- The "Class Mastery by Standard Video" on the Getting Started with Texas Miller & Levine Experience Biology page provides an overview of using data in the online platform for adjusting instruction. For instance, the video states that when clicking on the "Standard Info" button on the Class Mastery data page, teachers can use the "View Resources" link to find suggested resources for students who failed to master the standard. The suggestions show the most common area of weaknesses and where students should go to review. For example, the Remediation Suggestions for animal responses to their environments say, "If students have difficulty classifying different species as reproducing sexually or asexually and how their young develop, then have them review the Interactivity Reproductive Strategies. If students do not understand the concepts of complete and incomplete metamorphosis, then have them review the figure Metamorphosis in the Experience Handbook. If students cannot describe any of the extreme measures that some animals endure in order to reproduce, then have them watch the Explain Video Remarkable Reproduction a second time."
- Optional strategies for advanced, struggling, or ELPS learners are included in each investigation, providing teachers with a variety of options for the implementation of course content to respond to student needs. For example, in the Savvas content Investigation 2: Energy in Cells, Investigation 2: Assessment, there are multiple expressions of student achievement. Students have the option to revisit the anchoring phenomenon or complete an investigative or performance-based assessment.

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

- Each Experience contains sections in the teacher guide titled "Assess on the Spot" that allows teachers to gauge student understanding. Following the Assess on the Spot sections are other sections titled "Differentiated Instruction," which provide opportunities for classroom modifications. For instance, the Differentiated Instruction section for Investigation 4, Experience 1, Explore, provides specific supports for struggling students ("reinforce the concept that only

one allele for a dominant trait needs to be present in a genetic pair for the trait to be dominant") and for less proficient readers ("before starting the Interactivity, introduce the terms true-breeding, wildtype, and ebony").

- The Data tab within the online platform provides teachers with reports for each assessment. These reports include a color-coded breakdown of student scores (blue = 80-100%, yellow = 60-79%, red = 0-59%). This breakdown can be utilized when designing differentiated activities. Teachers can see this data quickly from their dashboards.
- Students have the option to create their own tests in groups or pairs that are aligned to the TEKS. Students can then evaluate each other's questions for clarity, rigor, and alignment. For example, a statement from the resource reads, "Student-Generated Assessment: Alternatively, have students work independently or in pairs to develop three questions that assess TEKS to be used in the Investigation Test. These questions could be formatted as short answers or multiple-choice items. You can use a shared spreadsheet or a free collaborative test-generation platform to have students write and share questions and evaluate questions submitted by their peers."
- The materials provide guidance to teachers in each unit by giving specific feedback and specific strategies for diverse learners. For example, in Investigation 2: Energy in Cells, Experience 3: Fermentation, the material provides distinct methodologies for advanced students, students who struggle, ELPS students, and reteaching of missed concepts. This differentiated decision pathway allows teachers to tailor instruction to meet student needs based on embedded assessments.
- The Realize resource allows teachers to preview students' progress in detailed data reports. There are support videos included that show teachers how to use the platform and the reports.

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

- Each Experience within an Investigation contains two types of Summary and Review documents: Quick Summary and Review ("to provide extra support and an Experience review") and Leveled Summary and Review ("for struggling students, or for those who want a more detailed review").
- Each Experience contains remediation suggestions that teachers may use after the quiz for the Experience. For instance, the Remediation Suggestions section for the Investigation 3, Experience 1 quiz offers the following suggestions: "If students are having difficulty understanding why cell division is important for the growth of organisms, then have them review the Explain Video Growth and the Cell Cycle. If students are having difficulty remembering the four stages of the eukaryotic cell cycle, then have them review the figure The Cell Cycle. If students are having difficulty remembering the phases of mitosis, then have them review the figures in the Mitosis section of the Experience Handbook." Also, in Investigation 9, the material states, "Mechanisms of Evolution Investigation Assessment: To make sure that students understand the content of the Investigation, assign the Investigation Assessment pages in the Experience Handbook. In addition, for a summative assessment of Investigation 9, assign the Investigation Test, which is available online as an ExamView bank or as an editable worksheet. Use the scoring notes and remediation strategies found online to assess students' responses and to provide targeted feedback for each item to remediate."
- There are a variety of activities for a teacher to choose from to leverage assigned content. For example, teachers are given the opportunity to show a video, use a PowerPoint, or assign an activity for the Explain/Elaborate section of Experience 3 or Investigation 1.
- The materials provide a variety of opportunities to demonstrate mastery. For example, in Investigation 2: Energy in Cells and Investigation 2: Assessment, students may demonstrate

understanding through multiple-choice, performance-based, or career-extension responses. This variety in demonstration of understanding fully encompasses "holistic learning" and gives teachers latitude to adjust student activities to their demonstrated needs.

- Each investigation contains sections called “Differentiated Instruction” that provide content-specific guidance to teachers to help modify activities. For example, the content for cellular respiration states, "Support Struggling Students: Some students may have a difficult time understanding how ATP stores energy. Tell students that a common analogy used for ATP is that its three phosphates are like a loaded spring. Losing one of the phosphates—the source of energy for a cell—is like releasing a coiled spring. Adding a phosphate to a molecule of ADP is like loading, or compressing, a spring again. Support Less Proficient Readers: Some students may stumble on the names of the compounds pyruvic acid, acetyl-CoA, and citric acid. Before students read, preview these terms by writing the names on the board and saying each name aloud. Have students repeat the words so they become comfortable reading and pronouncing them."

Savvas Learning TX Miller & Levine Experience 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 2/2

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

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

Evidence includes but is not limited to:

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

- Questions from the Experience Quizzes found in the Evaluate section of each Experience are scientifically accurate. For instance, question 5 from the Investigation 1, Experience 1 Quiz contains the following information: "Which of the following are functions of lipids? Choose three correct answers. A. Lipids form the exoskeletons of insects. B. Lipids form waxy leaf coverings. C. Lipids form bones and cartilage. D. Lipids store energy in fat cells. E. Lipids form cell membranes. F. Lipids carry genetic information." During Investigation 11, students build a rooftop garden for the performance-based assessment of plant systems. Students are encouraged to use any gardening information if they have any and to design a rooftop using certain specifications. This requires accurate and extensive plant knowledge to ensure accuracy.
- Questions from the Experience quizzes found in the Evaluate section of each Experience are free from errors. For instance, question 1 from the Investigation 9, Experience 3 Quiz contains the following information: "Mutations are one way that genetic variation is introduced within a species. Which of the following statements are true regarding mutations? Select all that apply. A. Mutations that affect phenotype may affect the fitness and natural selection of individuals that carry the mutation. B. Mutations that lower fitness by decreasing an individual's ability to survive and reproduce affect natural selection. C. Mutations must occur in egg and sperm cells to be passed on to the next generation in order to affect evolution. D. Mutations must occur in body cells to be passed on to the next generation and affect evolution. Mutations that result in adaptations may improve an individual's ability to survive and reproduce."
- The materials contain multiple formative and summative assessments in the form of embedded labs, reflection questions, unit quizzes, and investigation exams. These checks for understanding

are scientifically accurate and are free from bias and errors. Additionally, the assessments use a variety of ways to demonstrate mastery. For example, in Investigation 1: Biomolecules and Cells, Evaluation, students are able to complete standard, multiple-choice questions and/or performance tasks as part of the assessment process. Questions reflect the degree of difficulty for STAAR testing, preparing students for upcoming standards assessments.

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

- Assessments contain clear and developmentally appropriate charts and tables. For instance, question 2 in Investigation 9, Experience 2 Experience Quiz contains a data table showing "how natural selection of a single-gene trait affects lizard survival." The question asks, "Which of the following is true based on the allele distribution? Select all that apply." The graphics are clear and easy to understand. Also, in "Investigation 4: Inheritance and Variation of Traits," Anchoring Phenomenon (Anch. Phen.): Inheritance and Variation of Traits, students must give extended response answers on why offspring don't look exactly like their parents, building off of knowledge from previous chapters and new content presented in the unit. Finally, one of the questions on the investigation assessment for cell growth and differentiation that asks students to identify metaphase shows clear and colorful images to select from.
- The photos included in the interactives are accurate and clearly depict the structures as they are shown in various areas of the plant. The images come with a legend that is easy to read and understand.
- There is a SEPs Ask Questions on Molecular Technology activity that reads, "Based on the information in the text and illustration, what questions do you have about CRISPR? Pick one question you have and do research to find the answer." The referenced illustrations are a visual summary of CRISPR Gene Editing that includes clear, colorful images with labels and captions to assist with comprehension.

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

- The Investigation Assessment overview page in the Teacher Guide for each Investigation contains instructions for carrying out the summative assessment, including timing, along with guidance for an alternate option for a student-generated assessment. For instance, the Investigation Assessment information for Investigation 15 is assigned for 30 minutes and provides the following information: "To make sure that students understand the content of the investigation, assign the Investigation Assessment pages in the Experience Handbook. In addition, for a summative assessment of Investigation 15, assign the Investigation Test, which is available online as an ExamView bank or as an editable worksheet. Use the scoring notes and remediation strategies found online to assess students' responses and to provide targeted feedback for each item to remediate."
- Each Performance-Based Assessment includes a Teacher Support document within the Investigation that outlines the timing for the assessment and provides an answer key for each question. Additionally, the document also provides an Evaluation Rubric that teachers may use as a scoring guide.
- The "Getting Started with Savvas" Assessment and Testing guide document outlines how to build a test and interpret data from student evaluations. For example, teachers can analyze data by TEKS or by the student. The data is color-coded to demonstrate levels of mastery. For example, the investigation planner has red color-coded icons that distinguish the types of assessments found during the Energy in Cells Investigation: a quiz for each experience (energy

and life, cellular respiration, fermentation, and photosynthesis), then three types of investigation assessments- investigation test, performance-based assessment, and the experience handbook assessment.
- The "Understanding the New Biology TEKS" resource includes a graphic organizer documenting where/when standards are presented and assessed in the materials. This ensures that TEKS-related content is consistently and accurately assessed throughout the school year and that core content is not missing from evaluations.

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

- Each Investigation Assessment contains an editable version of the traditional test that teachers may use to remove/modify existing questions for students with modified curriculum accommodations. Editable tests include a Spanish version that is already translated into a non-English version. All tests have visual cues written into them with qualifying words written in bold. Additionally, the materials include instructions on "How to Build a Test," providing guidance to teachers on methods for altering items from the publisher's test bank. This could look like "chunking," providing shortened options during multiple testing, text-to-speech options, or word banks of new vocabulary.
- Content videos contain audio descriptions and closed captioning to assist students as needed. For example, the 9-minute “Explain” Video on Ecological Succession allows students to turn on closed captioning for support with the text that accompanies the audio.
- The materials contain classroom modification notes throughout the lesson. One example found in Experience 2 of Investigation 2 states, "Based on your student’s abilities and your schedule, you may wish to modify the Analyzing Data worksheet to be more open-ended or more guided. More Open Ended: Ask students to name a main course and two side dishes that they enjoy eating for dinner. Challenge them to find the number of grams of protein, carbohydrate, and fat in a serving of each food, as well as the number of Calories in their dinner. More Guided: Allow students to complete the Analyzing Data with a partner. As needed, help students set up the expressions needed to answer the questions. Remind students that according to the order of operations, multiplication comes before addition."

Savvas Learning TX Miller & Levine Experience 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 have not yet achieved mastery. Materials provide enrichment activities for all levels of learners. Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.

Evidence includes but is not limited to:

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

- There are four different levels of Inquiry Labs (Guided, Open-Ended, Short, and Advanced) that are present in each Investigation. Specifically, Guided Inquiry Labs contain appropriate scaffolds for students who have not yet mastered the content. For instance, the Guided Inquiry Lab for Investigation 3 contains clear procedural instructions for microscope slide preparation and analysis, opportunities for structured student sensemaking, including drawing diagrams, and guiding questions related to science and engineering practices such as constructing explanations, analyzing data, and using safety equipment and practices.
- Each Experience within an Investigation contains specific supports for scaffolding and differentiating instruction in the Differentiated Instruction section of each activity. Units include "practical advice and tips for students with special needs, struggling students, and advanced students." For example, in the section on the genetic code in Experience 1 of Investigation 6, students are prompted to make a two-column chart; they will add main ideas and details to as they read. The scaffold support is built in by requiring students to justify their thinking with examples as they read. In another instance, the Differentiated Instruction section for the Experience Handbook of Investigation 7, Experience 1 (Human Genetics) includes specific guidance for differentiating instruction for the following situations: Support Students with Special Needs, Support Advanced Students, Support Struggling Students, Support Less Proficient Readers. An example of support for English language learners in the material is the ELPS-targeted Support for Plant System Interactions for Intermediate Students on Writing. Using acquired basic vocabulary, the activity provides the sentence frame: A sporophyte is the ____ phase, which is the ____. This allows the student to access prior vocabulary to make educated connections to the content contextually. Also, in the Explore section of the investigation planner

for Human Activity and Ecosystem Stability, there is a section titled "Differentiated Instruction" that provides ideas to support less proficient readers. The teacher is provided guidance on words to write on the board, such as anomaly, emergence, and incubation. If students know the definition of the words, they write them down. If they do not know the definition, they have to research it and record the definition.

- The material contains opportunities for targeted assessment and remediation for students who have not reached mastery. As outlined in the teacher handbook, there are remediation suggestions for students struggling with specific concepts that "complement Experience Level Assessments." For example, in Experience 1 of Investigation 10, teachers are given specific questions to ask students to assess their knowledge in the Engage part. Within the Evaluate section, which is a quiz, remediation suggestions are given to help students achieve mastery. Within the quiz, after students have submitted their answers, feedback is immediate and tells students where they need to practice more.

Materials provide enrichment activities for all levels of learners.

- Each Investigation contains several complementary activities, such as those labeled "Got More Time?" These activities are specifically designed as enrichment activities. These enrichment activities take a variety of forms and contain options for differentiation. For instance, there is a Beyond Labz activity in Investigation 7, Experience 1, titled “Color Blindness Inheritance." In this enrichment activity, students learn how color blindness is inherited from parents. The activity also provides specific support for students with special needs and less proficient readers in the Differentiated Instruction section of the activity.
- Each Investigation contains a Performance Based Assessment that challenges students with real-world applications. These Performance Based Assessments also include supports for differentiation in the Differentiated Instruction section. For instance, the Performance Based Assessment for Investigation 11 challenges students to use their knowledge of plant systems to design a rooftop garden. The Assessment also contains specific support for advanced students, including encouraging students to submit their design to green roof installers. As another example, in Investigation 1: Biomolecules and Cells Experience 2: Chemical Reactions and Enzymes Experience 2 Review, there are a variety of self-assessment/extensional opportunities depending on student preference.
- While all investigations have their own anchoring phenomena, they also have related phenomena and begin every experience with more phenomena for students to see or interact with in greater depth. As an example, Experience 4 in Investigation 10 has one where students build their own models of the atmosphere using candles as an anchoring phenomenon. As another example, Investigation 5 (DNA), Hook and Inspire DNA explores careers as a food safety inspector using content from the module, with multiple options for students to "deep dive" into various extensions of the unit concepts.
- Each Experience in the materials contains multiple levels of review/enrichment depending on student learning modalities, including multiple-choice, SEP tasks, review and reflection, etc. For example, in Investigation 1: Biomolecules and Cells Experience 2: Chemical Reactions and Enzymes Experience 2 Review, there are a variety of self-assessment/extensional opportunities depending on student preference.
- The materials also provide levels of differentiation using the 5E model of instruction. For example, in the Explore section of the investigation planner for Human Activity and Ecosystem Stability, there is a section titled "Differentiated Instruction" that provides guidance to support advanced students. The example in this experience is for students to research the Montreal

protocol and debate a given quote from Ronald Reagan. Students choose a role, such as scientists or business people, and present arguments surrounding the cost and benefits of the protocol. Also, in the Explain/Elaborate section of Experience 1: Understanding Disease, the teacher is provided guidance for local applications by having students access the Texas Department of State Health Services website to learn about current efforts to help control infectious diseases in Texas. Students are placed in small groups to discuss similarities and differences between viruses and cells. then they organize their information into a graphic organizer. Then students make connections to previous learning.

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

- Each Experience within an Investigation contains sections titled Assess on the Spot that serve as just-in-time assessments through checks for understanding. For instance, the Assess on the Spot section for the Quick Lab in Investigation 14, Experience 1, challenges students to define biotic and abiotic in their own words and provide examples of how biotic and abiotic factors could affect each other.
- Each Experience within an Investigation contains sections titled Scaffolding Science and Engineering Practices that serve as just-in-time scaffolds. For instance, the Experience Handbook for Investigation 16, Experience 1, contains a Scaffolding Science and Engineering Practices section that asks students to make a line graph of provided data to understand biological magnification. This section also includes a check for understanding by reminding teachers that students should be using a consistent scale for their graphs.
- For EB students, there are differentiated supports built in for the teacher to immediately help them retain information that is dependent upon their English proficiency level. Any other mentions are in general for struggling students.
- Each Investigation in the materials is organized in 5E sequencing, with multiple options to apply learning and support in each phase. As such, teachers have flexibility in implementing a variety of activities based on student formative assessments; this just-in-time learning allows for student mastery despite a variety of pacing and mastery of content acquisition. For example, in the Evaluate section for Biotechnology, one of the remediation suggestions says, "If students are unsure about how CRISPR works, then have them work through the Visual Summary CRISPR Gene Editing." Secondly, in Experience 3 of Investigation 10, teachers are given specific questions to ask students to assess their knowledge in the Engage portion, but before that, teachers are encouraged to assess the students' knowledge of milkweed and monarch butterflies.

Savvas Learning TX Miller & Levine Experience 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.

- Each Investigation contains an anchoring phenomenon. Students create an initial model of the anchoring phenomenon at the beginning of the Investigation and have opportunities to revisit the anchoring phenomenon after subsequent Experiences within the Investigation. At the end of the Investigation, students construct a final model of the anchoring phenomenon and complete a reflection. This can be seen, for instance, in Investigation 4. At the beginning of the Investigation, students watch a video about parakeets and attempt to answer the question, "Why don't organisms look like their parents?" At the conclusion of each of the three Experiences within the Investigation, students add to their model of the anchoring phenomenon. Finally, at the end of the Investigation, students construct a final model and reflection based on the anchoring phenomenon.
- Each Investigation contains an Inquiry Lab with multiple levels of implementation. These Inquiry Labs "strengthen inquiry skills as students make models, study local science issues, and complete in-depth experiments."

- The materials provide a variety of selected response options for standardized content, allowing students to demonstrate competence in a variety of response modalities. For example, in Investigation 13: The Challenge of Disease Experience 1: Understanding Disease, students are prompted to identify, explain, or investigate according to chapter content. Another example is: During the quick summary review on cell specialization and differentiation, students fill in missing information in a table after reviewing the lesson, then they complete a graphic organizer of the types of signals that affect cell differentiation. Within the teacher materials for Investigation 7, the teacher is given several symbols that represent how the material is taught. There are several ways the material is presented, including an interactive activity, reading text, a mini-lecture, and investigations.
- The materials are organized using the 5E format to help teachers and students to teach and process content in a variety of ways. For example, Experience 1 on the structure of DNA starts with the Engage section, where a teacher demonstration of building a model of DNA prompts student discussion about the types of bonds. During the Explore phase, students analyze data and complete a simulation on two different types of bacteria. In the Explain portion, students watch a video on the history and components of DNA. During the corresponding reading passage, teachers are given guidance notes for scaffolding the SEPs and ELPS, as well as differentiation strategies and career connection advice. Also, Investigation 12 (Animal Systems) includes four distinct experiences modeled in the 5E processes to engage students at a variety of learning levels. In addition, within the student handbooks for the Explain/Elaborate part of Experience 1 of Investigation 7, the teacher is also given instructions to direct students to create their own notes in addition to the workbook-like structure of the student handbook.

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

- Some activities have ELPS Targeted Supports that encourage partners or small groups (for targeted ELPS support groups, the teacher is encouraged to pair students of low and high English ability together to help each other). All items within a module have a symbol that denotes whether that item can be completed in pairs, groups, or individually as well. Supports contain specific guidance for each level of learner (Beginning, Intermediate, Advanced, Advanced High). For instance, the Experience Handbook for Investigation 1, Experience 1, contains an ELPS Targeted Support section that encourages students to work with a partner and provides sentence stems for students at the Beginning stage. Also, in Investigation 10: Evidence of Evolution, there are a variety of grouping options based on learning modalities.
- Each Investigation provides an opportunity for class discussion at the end of the activity when the class revisits the anchoring phenomenon. Specific instructions are provided for guiding the class discussion. For instance, at the end of Investigation 7, the teacher leads a class discussion on the anchoring phenomenon (Why doesn't everyone have extra toes?). Students are expected to incorporate content knowledge that they acquired during the Investigation into their reflection.
- Each investigation follows the 5E format, and the materials support a variety of instructional groupings. In an example lesson, the teacher would conduct a demo at the beginning, which targets the whole group. Then, for example, students may work independently to observe biotic and abiotic factors before pairing up to share their responses and have a whole class discussion on ecology. At the end, students process individually during the quick summary and review before taking the quiz on ecology on a living planet (for example).

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

- Each Investigation contains an Inquiry Lab with four possible versions: Guided, Open-Ended, Shortened, and Advanced. In the Guided version, students are provided with guidance for carrying out lab procedures. In the Open-Ended version, students have the opportunity to design their own lab procedure. For instance, the Investigation 12 Inquiry Lab (Digestive Enzymes at Work) provides a procedure for Part III Carbohydrate Digestion in the Guided version but allows students to develop their own procedure in the Open-Ended version.
- Each anchoring phenomenon within an Investigation contains a CER worksheet in which students first work independently to develop an evidence-based argument and then collaborate by sharing their argument with the class to evaluate and revise the argument. For example, within the anchoring phenomena of Investigation 4, students are asked to continuously reference and reflect on the CER explanation they have for their phenomena. Students initially create their explanations by themselves but are encouraged to work with a group to develop them further. To help guide a deepening of an explanation, the teacher is given questions to ask the student to further their understanding.
- The materials provide differentiated instruction with a variety of review or extensional opportunities depending on student performance. The teacher guide specifically outlines opportunities for review or extension. For example, each experience includes sections called "Assess on the Spot '' throughout the investigation, planners that provide guidance for the teacher on formative assessments to gauge and track student mastery. For example, after the Explain video on photosynthesis, the Assess on the Spot guidance is for the teacher to have students give thumbs up or wave hands to show their comprehension levels on the process of photosynthesis. In another example, teachers are given videos in the Beyond Labz videos that model what the experiment is about and how to complete it. The teacher can show several videos to students. For example, within experience 1 of Investigation 4, teachers are given options to make the student workbook individual or collaborative.

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

- Each Investigation contains an anchoring phenomenon that incorporates various communities. For example, in the Introduction to the SEPS, the picture that describes argumentation as dialogue includes males and females from different racial backgrounds. The materials also include Related Phenomena that are Texas-specific that can be substituted for the anchoring phenomenon. For instance, the anchoring phenomenon for Investigation 14 (The Biosphere) references algal blooms that grow in coastal communities. The Related Phenomena section references crops that are grown in agricultural communities and wildfires that occur in rural or forested communities. Another example is within Experience 2 of Investigation 7; students can discover the trade-off between malaria and sickle-cell anemia and the geographical ranges of both diseases. Students are also introduced to the "royal disorder" of hemophilia in the European royal family in Experience 3. Finally, within the anchoring phenomena of Investigation 4, students are given the question, "Why don't offspring look exactly like their parents?" as a lead-in to genetic diversity. Furthermore, within the related phenomena, Corgi dogs and Cows are discussed as other phenomena for students to explain.
- The teacher guide provides an overarching structure to implementing lessons. For example, the Introduction to Science and Engineering section at the beginning of the eText contains a section

titled Contributions of Scientists. This section introduces students to scientists from a diversity of genders, races, and ethnicities.

- Career connections are also considered in each unit. For example, during a section on connecting to careers in the DNA replication Experience, sequencing technicians' jobs are described so students understand the connection between gene sequencing and scientists.

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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.

- Each anchoring phenomenon at the beginning of an Investigation contains a section titled Vocabulary Support which provides scaffolds specifically designed for English language learners. For instance, the Vocabulary Support section for the Investigation 7 anchoring phenomenon gives specific directions for student grouping based on native language. Also, in Investigation 5: DNA Experience 1 "The Structure of DNA - What are Genes Made of?," the materials provide a think-pair-share activity on the components of genes, allowing Emerging Bilingual (EB) students to explore new vocabulary within a content-rich and safe environment.
- The Experience Handbook passages for each Experience within an Investigation provide specific scaffolds for English language learners within the ELPS Targeted Support section. These scaffolds are differentiated based on various levels of English language proficiency (beginning, intermediate, advanced, and advanced high), and there are notes in the margins labeled as listening, speaking, reading, or writing for support. For instance, the Experience Handbook passage for Investigation 12, Experience 1 provides a sentence stem for beginning and intermediate-level English language learners and promotes more open-ended responses for advanced and advanced high-level English language learners. Also, the chapter overview for Chapter 2 contains ELPS correlations written in. Within the anchoring phenomena, students can be given a presentation or video to learn about the phenomena. Finally, there is a listening note on human genetic disorders that prompts students to "draw human karyotypes for a person with Turner's syndrome and a person with Klinefelter's syndrome. Then work in pairs to explain

your drawings. Listen to your partner's explanation and ask your partner to clarify anything you do not understand. ELPS 2.D.2"

- The materials include a guide with ELPS standards and detailed instructions on where to find examples of implemented standards in the text. The guiding document also includes examples of cross-curricular connections. These are partitioned out between Experience Handbook (SE) and Teacher Guide (TG). For example, Investigation 11 Encounter on plant systems provides guidance for the teacher to support English Learners by "provide labels for classifying, such as by providing ideas for classification type or visual patterns to notice. Provide a closed classification by providing headers for columns and have students place words under the correct headers." Then the ELPS targeted support section lists specific guidance for each level (beginning, intermediate, advanced, and advanced high) for the ELPS READING 4.F.7 (use support from peers and teachers to enhance and confirm understanding).

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

- The student edition of the eText in the online platform contains excerpts that are presented in Spanish, including objectives, vocabulary, and course content. Within each chapter, each experience has its own workbook. This workbook can be assigned in either English or Spanish. Multilingual glossaries are also included in the online platform for the following languages: Arabic, Haitian Creole, Hmong, Korean, Portuguese, Russian, Simplified Chinese, Traditional Chinese, and Vietnamese.
- In each unit, there is an Investigation and Encounter section that is vocabulary based and includes Vocabulary Support specifically addressed to English learners; these strategies include non-vocabulary, matching visual images with key terms, etc. This encourages students to use their first language to scaffold to L2 terms and definitions.
- The materials provide a variety of assessment options, ranging from standardized multiple-choice questions to CERs to discussions to pictorial responses. This is inclusive of EB who may be able to demonstrate mastery but not through traditional assessment styles. This flexibility promotes equity in the classroom.
- Teachers are provided guidance to allow students to use their native language to understand vocabulary. For example, Encounter for Investigation 4 states, "Support for English Language Learners: Direct students to work in pairs or small groups to understand the process of independent assortment, which increases genetic diversity. Have one student identify the main ideas in the section on the role of independent assortment and have the other students agree or disagree with what is being said. Have more advanced students describe how independent assortment takes place and why it is beneficial to increasing genetic diversity. Have them create a model that demonstrates the process and share it with the class. Another example is within the anchoring phenomena of vocabulary support. EB students are encouraged to make a vocabulary web using their native language first and then move to English support. Also, the vocabulary support note for investigation 2 on Energy in Cells provides the following guidance for teachers, "Support English Learners: Allow students to use their native language to create their webs. Provide images or have students create images that can be used to represent concepts and terms."

Savvas Learning TX Miller & Levine Experience 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 criteria for this indicator. Materials provide guidance on fostering connections between home and school.

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

Evidence includes but is not limited to:

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

- Each Investigation (such as Investigation 6) contains a section titled Get Connected! at the beginning of the Investigation. The “Get Connected!” section provides an overview of the Investigation design, including content that will be taught and activities that will be completed. For instance, the Investigation 6 Get Connected! section describes gene expression in the content that will be taught and provides activities such as reading and watching videos.
- Each Investigation contains an Investigation Letter Home that provides an overview of the topics in the course as well as an explanation of the 5E instructional design model. This letter also includes a parents' guide and a how-to letter for getting started and describes the content that will be learned in each Investigation. For example, the Investigation Letter Home for Investigation 2 describes the learning process surrounding topics such as photosynthesis and cellular respiration. Also, in Investigation 8, a letter will be sent home, designating the structure of the chapter and the phenomena the chapter is based on. Parents are also given a generic order of lessons and content that their students are learning.
- The materials’ interaction with caregivers (outside of the traditional classroom) includes Checks For Understanding in each investigation. These "on-the-spot" assessments allow for monitoring of student mastery, allowing for flexibility in instructional guidance and alteration of the suggested scope and sequencing of materials as needed. For example, in Investigation 2: Energy in Cells Experience 3: Fermentation Interactivity, student feedback allows implementation strategies to be modified to meet learner needs.
- The Table of Contents in the Student Experience Handbook includes a list of the TEKS, including the SEPs, as well as Texas Featured Digital Assets found throughout.

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

- The Course Letter Home may be used at the beginning of the school year to describe the contents of the course and offer suggestions about strategies to help reinforce student learning and development. The following suggestions are offered: "Look through recently completed lessons and be sure to ask lots of questions. One of the best ways for students to reinforce their learning is to have them explain it to someone else. Ask about homework assignments and check that they have completed them. Help your student collect materials and information for school activities and assignments. This course is accompanied by a variety of online activities, such as videos, animations, and virtual labs. If you do not have a home computer, advise your student to use computers, tablets, or other devices in school or at the library. If you do have a home computer, help your student learn to complete assignments, collaborate with peers, and do research online." For example, the letter for Investigation 1 explains to the caregiver the main topics that are covered in the investigation as well as a description of the phenomenon of "Why is water sparkling?" that will help support students' sense-making of the content.
- Each Experience within an Investigation contains two levels of summary and review: the Leveled Summary and Review and the Quick Summary and Review. These summary and review activities, when assigned to students, may be used by caregivers to facilitate differentiated review lessons with their child.
- The material has a Parent's Corner with various resources on how to engage their learner. A link to the parent guide is found here as well. The parent guide is translated into 6 other languages besides English. Within the Parent's Corner, there is a small tip guide on how to engage your learner with seven tips included to foster growth in the student, including keeping the focus on fun and setting expectations early. It comes in English and Spanish versions.
- The materials are anchored in authentic phenomena, which aids student learning through interactions with actualized content. Caregivers can investigate implementation strategies through phenomena by reviewing instructional documents posted in the “A Phenomenal Experience” resource.
- The student handbook contains a “Get Connected” sheet for each investigation that provides an overview of the topic with additional places for caregivers and students to get content support through readings, videos, interactivities, and career connections.

Materials include information to guide teacher communications with caregivers.

- The Course Letter Home may be used at the beginning of the school year to initiate teacher communication with caregivers. It fosters the teacher-caregiver relationship by stating, "I encourage you to stay involved in your student's learning by keeping an open line of communication between us. By all means, visit the classroom during the open house or make an appointment with me if you have any questions."
- Each Investigation contains an Investigation Letter Home that describes the content that will be learned in the Investigation and suggests strategies to help reinforce student learning and development. These letters may be posted on the online platform in a Google Document, which can be easily downloaded and translated into a caregiver's primary language. For example, in Investigation 8 Letter Home, parents are encouraged to keep lines of communication open with the instructor. All letters home to a guardian encourage communication and are structured to keep lines of communication open, as they can be edited for the teacher's needs. Also, one of the Investigation Letters Home states, "Look through recently completed lessons and be sure to

ask lots of questions. One of the best ways for students to reinforce their learning is to have them explain it to someone else. Ask about homework assignments and check that they have completed them. Help your student collect materials and information for school activities and assignments. This course is accompanied by a variety of online activities, such as videos, animations, and virtual labs. If you do not have a home computer, advise your student to use computers, tablets, or other devices in school or at the library. If you do have a home computer, help your student learn to complete assignments, collaborate with peers, and do research online."

- The material supports differentiated instruction to meet the needs of all learners, and communication of implementation strategies are transparent in guidance materials. With ELPS and SpEd populations, materials are scaffolded appropriately to meet learner needs, with rationales provided to both instructors and/or caregivers. For example, in Investigation 2: Energy in Cells, Experience 3: Fermentation, materials include explicit ELPS and differentiated support strategies.
- The materials acknowledge caregiver information and feedback opportunities when implementing materials. The Parent Support document creates a bridge between students, instructors, and caregivers regarding the materials' approach and resources through the Realize resource.
- The Teacher-Caregiver Communication Guide starts with the following guidance for the teacher, "SAVVAS is invested in providing materials that will help your students to be successful and to gain proficiency in science. Great instruction starts in the classroom, but the involvement of parents and caregivers in the students' at-home learning is also key to ensuring student success. Student learning opportunities outside of the school day can, and should be, leveraged in the classroom to provide a more robust learning experience. At-home learning provides students with another lens that, when brought to the classroom, can increase the classroom learning of all students."

Savvas Learning TX Miller & Levine Experience 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 in the course materials. Materials provide clear teacher guidance for facilitating student-made connections across core concepts and scientific and engineering practices. Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.

Evidence includes but is not limited to:

Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built in the course materials.

- Within the student material, items are listed in scope and sequence order. Appropriate TEKS are listed directly on the page where students and teachers can see how the material is aligned. Within the teacher material, there is a direct scope and sequence with pacing and extensions if a teacher has extra time. Units are based on phenomena.
- The teacher support tab contains guiding documents for pacing, cross-curricular standards, scope and sequence, and TEKS alignment. Scope and sequence is clearly outlined for the year, aligned to TEKS, and anchored in guiding phenomena.
- For example, Investigation 1, which addresses Biomolecules and Cells, contains a clear sequence of an anchoring phenomenon, four experiences that build on the knowledge, and an assessment. This sequence is found in the Teacher Guide.
- TEKS 5.A, which addresses the relation of four biomolecules to cellular structure and function, is aligned to several lesson components in Investigation 1, such as the “Explain Video.” This can be found in the TEKS Biology Correlations.
- The course planner and pacing guide suggest time allocations for the core activities in each Experience and Investigation (including labs) and the “Got More Time” activities and projects that the teacher may add.

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

- In the Teacher Support section of the “Getting Started” tab on the Biology website, there is a document that teachers can access detailing how the material for students also applies to TEKS in other subjects across high school. However, this is the only document that provides clear evidence of topics covering multiple TEKS and does not include other topics within the student and teacher views. There are plenty of spaces to practice virtual labs, which relate directly to the material being covered.
- Within the course material for every unit, there is a small teacher guide to the unit that is arranged within the 5E model. The usage of plus signs and check marks to differentiate between bare minimum and extra extension material are present for teachers to decide on pacing.
- Materials are scaffolded and apply previous knowledge to more-complex concepts, with multiple opportunities for students to apply scientific and engineering practices. Core concepts are visualized in anchoring phenomena for each unit.
- The introduction to the teacher guide states that the authors of the materials have provided the, "Texas classroom with an immersive, student-driven learning experience. Students are doing science through inquiry and scientific reasoning using phenomena, engaging labs, and real-world application.” For example, Experience 3 in Investigation 1 addresses prokaryotic and eukaryotic cell structure. The materials provide the teacher with a scaffolded informal assessment that connects the core concepts of cell structure and DNA. The materials also provide the teacher with scaffolded steps to carry out a relevant quick lab involving microscopes. Investigation 3 Inquiry Lab challenges students to prepare slides of root tips and evaluate the number of cells in each phase of the cell cycle and mitosis. Teachers are given clear steps for the progression of the lab, along with "Additional Teaching Strategies" that are found in the Teacher Guide. Through the lab, students carry out science practices to reach a conclusion.
- Student sensemaking of core concepts occurs through scientific inquiry and engineering activities.

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

- The student materials contain opportunities to complete TEKS practice tests that gauge student mastery of TEKS that are presented throughout the year. For example, enzymes are first introduced in Investigation 1 student materials. The materials continue to engage with enzymes, providing an opportunity for review and practice of knowledge and skills through inquiry labs in Investigation 7 (Restriction Enzymes) and Investigation 12 (Digestive Enzymes at Work).
- An example of applying knowledge and skills through a build-on activity includes the Performance Based Assessment: Using Cells to Clean Up Pollution activity.
- The Experience Review prompts include a SEPS processing activity such as, "The materials include intentional practice and spiraling of previously taught knowledge and skills from earlier lessons/grade levels and current lessons’ science knowledge and skills." It also includes a review question and related questions to support mastery and retention.
- Students apply knowledge and skills using performance tasks, including data analysis and interpretation. In Investigation 5: DNA, students synthesize core concepts in the “ANALYZING DATA: Chargaff’s Rule” activity.

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- Although students are given several different pathways to demonstrate their mastery with chapter quizzes, investigations, performance assessments, and reflections, the spiraling of previous contents is not intentionally done by the publisher.

Savvas Learning TX Miller & Levine Experience Biology

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

1	Materials provide teacher guidance and recommendations for use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning.	M
2	Materials include standards correlations, including cross-content standards, that explain the standards within the context of the 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 for this indicator. Materials include classroom implementation support for teachers and administrators.

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

Evidence includes but is not limited to:

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

- In every investigation, the teacher start guide breaks down the timing of every lesson and provides information about each part of the lesson by detailing if the students are watching a video or explaining their thoughts. For example, each anchoring phenomenon in an Investigation contains scaffolds for implementation. Scaffolds include Inquiry Launch, Discuss the Phenomenon, Reflect on the Phenomenon, Vocabulary Support, and Related Phenomena.
- Also within the teacher guide are language supports for vocabulary terms that are optional for teachers to use. For extensions, more related phenomena are added. Each lesson has a suggested classroom modifications section. In addition to the teacher resource guide, Savvas has online tutorials for teachers to "Find answers to questions from placing and tracking your order to accessing your online resources and support tools."
- The online platform includes a page titled "Getting Started with Texas Miller & Levine Experience Biology," which contains materials for implementation. The sections outlined on this page include Program Overview, Teacher Support, and Correlations guides that promote the implementation of the course curriculum. In particular, the video "Get to Know Texas Miller &

Levine Experience Biology" is designed to assist teachers with accessing appropriate course materials. On the "Getting Started with Texas Miller & Levine Experience Biology" page, there is a "My Savvas Training" tab containing video tutorials, a teacher guide for implementing text, labs, etc.

- The materials contain a component navigation guide that highlights how to access basic features. It also includes an "About this Book" guide that highlights the essential features of the resource. Some components are: pacing information, phenomenon, inquiry labs, student texts, teacher presentations, and assessments. This section also explains the quick start guide that allows teachers to browse for features to customize the learning experience, a progress monitoring dashboard of all assignments, and on-demand PD.
- The materials also include various labs: inquiry labs from Flinn, virtual labs from Beyond Labz, and quick labs. There are sections to reinforce learning with remediation suggestions and addressing misconceptions. There is vocabulary practice and targeted strategies to support the ELPS. There are descriptions for activities to support the SEPs plus college and career readiness.

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

- In the teacher guide, TEKS and cross-content TEKS are listed, and where to find them within the course material. The standards are listed plainly and very visibly on every lesson planning page for students and teachers to reference. For example, in Investigation Overviews, there are sections that address TEKS Progression (both from previous school years and TEKS present in the current Investigation), Science and Engineering Practice TEKS, ELPS Standards, and (if applicable) Cross-Content Standards.
- The materials include cross-content standards as well as TEKS and science and engineering practices that are embedded in the course. They include detailed documentation of how materials relate to both the OLD as well as NEW TEKS. For example, the teacher resources include a Biology TEKS Correlation document that lists all the TEKS and where they are found within the teacher and student resources.
- Units are organized by phenomena and problems. The teacher guide for each unit presents a question, a description of the phenomenon or problem, and how students will show their explanations or solutions. The teacher guide also includes the grade-level standards that correlate with learning within the unit and the standards progression as a look back to previous grade levels for which the concepts being learned are foundational for vertical alignment.
- Within the assessments, there are prompts for CER and opportunities for students to build writing skills, such as students conducting an Internet search to figure out what organization is responsible for building highways in their area as a part of Investigation 12: Animal Systems. The online course has a Hook & Inspire section focusing on STEM careers that includes math support resources.

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

- The resource includes a separate master materials list that is comprehensive of all of the equipment and supplies that are needed for every inquiry lab and quick lab. All materials and equipment for the inquiry labs are listed in the teacher guide and on the student handout. Materials can be printed or submitted online.

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- The master materials list can be downloaded from the online platform and includes a generalized list of all equipment and supplies, along with the quantity that is necessary for instructional materials. The Master Materials List is separated into sections titled Chemicals, Equipment, and Household Items that will be required throughout the school year.
- The material also contains a link to "Exciting Lab Partnerships" with Flinn Scientific that includes differentiated lab instructions, along with a list (by type) of lab materials that are needed.
- Each inquiry lab contains a section that lists the necessary materials for implementation. For example, the inquiry lab in Investigation 9, Experience 4, is titled “Natural Selection in Beaks.” This inquiry lab has a materials list provided in the overview. The materials list includes a calculator, "food" items, weighing dish, and "any additional materials desired for beak design."

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

- The teacher guide found in the materials contains a document named Lab Safety that provides an overview of Education, Management, Lab Techniques, Personal Safety, Equipment, Storing Chemicals, and Disposal. The teacher guide also has notes on how to remind students to promote lab safety and how to store chemicals.
- The teacher overview embedded in "Getting Started with Texas Miller & Levine Experience Biology" contains a summative guidesheet to safety practices in the classroom. Each unit contains multiple experiences with clearly written laboratory safety instructions.
- For example, for the Cell Growth and Division Inquiry Lab, the safety bullet mentions the blue stain is moderately toxic by ingestion and permanently stains many objects. Another example, the inquiry lab in Investigation 15 contains a safety tip for working with protozoa: "When working with protozoa, it is important to minimize contamination of materials. Therefore, always be sure you are using carefully cleaned or sterilized Petri dishes, nylon meshes, microscope slides, cover slips, Uhlig extractors, and pipets..."
- The Experience Handbook includes guidelines for safety. There are various safety videos: prelab safety, safety equipment, PPE, biological hazards, physical hazards, and common lab procedures.
- Within the student materials there are two forms of lab safety warnings. There are symbols depicting potential hazards and a written warning about chemicals used in the lab.

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Indicator 8.3

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

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

Meets | Score 2/2

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

The 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 teacher guide contains a course planner and a pacing guide. The guide relates timing instructions to both period schedules and block schedules. Each Investigation (unit) includes a timing recommendation for each Experience (lesson). For example, the teacher guide recommends four periods or two blocks for Experience 1 (Cell Growth and Division) in Investigation 3 (Cell Growth and Differentiation). Another example is Experience 1 for Investigation 6 on RNA and Protein Synthesis, which lasts 1.5 periods or three-quarters of a block.
- The course planner and pacing guide recommend 13.75 periods or 6.75 blocks for Investigation 1 (Biomolecules and Cells). Investigation 1: Biomolecules and Cells also outlines all 5E components, along with the timing for each.
- Lessons are given suggested time frames for each individual item. Teachers are given the option to include extra information if they have time. There are brief sections on differentiation for teachers to enhance student learning. For example, the RNA and Gene Expression investigation shows 10 minutes for the inquiry launch, 15 minutes to discuss the phenomenon, then five minutes to reflect on the phenomenon.
- Course planning and pacing guides are anchored in guiding phenomena.
- The units and lessons allow for depth and focus. The materials contain suggestions and guidance for time considerations so that learning experiences do not skim over science concepts but support students to be able to spend sustained time developing content and skills in grade-appropriate areas. Materials embed acceleration and extension options within units and lessons, allowing students to learn at an accelerated pace.

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

- Units are organized with an anchoring phenomenon. Lessons are titled "experiences" that follow the 5E model. Lessons are also built to move students from micro to macro. The investigations begin with biomolecules and energy, moving into cell growth and inheritance of traits. Then the investigations cover DNA and gene expression, which is followed by evolution, animal and plant systems, and then concludes with ecosystem stability and human impacts on the biosphere.
- Although the teacher guide is written using the 5E model and anchored in guiding phenomena based on regular and block period planning, these are suggested workflows that can be altered by the individual teacher. For example, Investigation 1: Biomolecules and Cells planning guide includes suggested time allotment for each component. However, teachers may choose "a la carte" which of the activities to implement without disrupting the overall acquisition of key skills and concepts.
- Materials provide a suggested sequence of units that considers interconnections between content knowledge and science and engineering practices. For example, students are provided with an Introduction to Science and Engineering resource, including the topics of Science and Society, Scientific Inquiry and Measurement, Data Analysis, Calculations, and Models and Communication, before utilizing these practices in inquiry labs that are carried out throughout the school year. Materials clearly delineate the order of units to ensure students learn about precursor concepts first. For example, students learn about nucleic acids (Investigation 1) before learning about the structure of DNA (Investigation 5).
- The materials provide guidance about the flexibility of the placement of specific units by offering a dashboard so teachers can plan by unit or customize using specific components.

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

- The vendor’s customer handbook contains links to alternate versions and ways to implement content within the school year, but with flexible sequencing. All units are scheduled to be completed within one Texas school year. Teachers are also given pacing ideas for block scheduling and traditional scheduling. Some lessons are marked as optional for teachers who have spare time. The material provides a checkmark and a plus mark as a visual for teachers to adjust their pacing for each unit.
- Materials include units, lessons, and activities for a full year of instruction. For example, there are over 34 total weeks of new instruction included in the Course Planner and Pacing Guide. This meets TEA guidance for timing. Materials provide guidance for adjusting units based on time constraints. For example, each Investigation (unit) contains a Fast Track (core curriculum) timing recommendation and a “Got More Time?” (supplemental curriculum) timing recommendation.
- Each investigation shows the content that can be taught using the Fast Track pacing, where teachers can assign only core assets or allow students to personalize their learning if time allows.
- Materials also provide guidance for adjusting individual lessons based on time constraints. For example, each inquiry lab is available in four versions: Open-Ended, Guided, Short, and Advanced.
- The scope and sequence indicates a majority of the lessons support the development of the TEKS, SEPs, recurring themes, ELPS, and CCR, and ideas among all areas of the grade level.

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Indicator 9.1

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

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

Not Scored

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

The 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.

- Student materials include a clear main subject, prominent and clear titles and headings, and content that is organized in a logical progression. For instance, each excerpt of the Experience Handbook contains a title, objectives, vocabulary, subheadings, content, and relevant activities/questions. The Student Experience Handbook contains appropriate use of white space, including ample white space to allow for easy reading and comprehension, consistent margins and empty spaces around content, similar spacing between sections, and a limited number of fonts. In a similar example, the introduction to Investigation 3 shows a full-page colorful picture on the left-hand side of a starfish with a missing limb with the anchoring phenomenon introduction. Then on the right-hand side, the TEKS are listed at the top with a single font for the main text that has spaced paragraphs, a single column, and adequate margins. Lastly, the process questions for students are listed at the bottom in a smaller, darker font to show contrast to the text. Vocabulary is also given a different font color from the text to make it visually salient.
- Teacher materials are similar and consistent across all investigations and have the same structure to them. Fonts are easy to see, and available student tools include a screen reader. They are strategically formatted to balance text and graphics with sufficient white space to minimize cluttering. This maximizes the amount of material in the document without overwhelming the reader. For example, in Investigation 4: Inheritance and Variation of Traits Experience 1: Mendelian Patterns of Inheritance, headings for each 5E section are separated with approximately 1" of white space, while sections for instruction, questions or guidance material are separated by 1/4"-1/2," allowing readers to easily distinguish the organization and flow of each investigation.

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- Teacher materials include multiple avenues to access information. First, there is a search bar on the dashboard that allows a teacher to type in keywords to access content. A second way is to use the categories already created, such as activities, books/readers, practice, or teacher support, to find resources. A third way is to use the eTeacher guide, which has all of the components organized in chronological order by investigations.

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

- The pictures next to the text are directly relevant to the text material they are near. For example, to help students understand the difference between species and populations, a picture of each is included as part of the levels of ecosystem organization text. They also have relevant captioning to guide student attention and deepen the connection of pictures to the text without being visually distracting. For example, in Investigation 3: Cell Growth and Differentiation, Experience 1: Cell Growth and Division, Mitosis, the illustration provided for prophase has distinct vocabulary and cell structures represented in both the diagram and accompanying labels.
- Embedded pictures and graphics are stimulating and age-appropriate throughout the materials. These graphics provide visual representations of core content and aid student learning and engagement without being too complex or distracting. For example, in Investigation 11: Plant Systems, Experience 1: Plant Systems and Interactions, the Explain/Elaborate video expertly illustrates variations in the appearance of the three main plant organs (stem, root, and leaves), despite these organs having the same function. For all learners, especially those who learn visually, this helps in sensemaking and clarification. Another example can be found in Investigation 4, Experience 1, in the Experience Handbook. The activity contains a standards-aligned, developmentally appropriate graphic that demonstrates the genetic concept of segregation. Also, in Investigation 11, Experience 4, in the Experience Handbook contains a standards-aligned, developmentally appropriate graphic that demonstrates various tropisms in plants.
- Teacher multimedia presentations are clear, concise, colorful, and visually appealing. For example, the PowerPoint on cellular respiration has 16 slides. The slides are easy to read and have a balance of words and images. All of the text is in a single font with bold reserved to draw emphasis on the title. The images are colorful and age appropriate.
- Student assessment activities are clear and concise without providing the reader with distracting information. For example, the model of photosynthesis that asks students to type in their answers for inputs and outputs shows a simple yet detailed and colorful image of a chloroplast. The relevant parts are labeled, such as thylakoid and stroma. Various reactants and products of light-dependent and light-independent reactions are identified.

Materials include digital components that are free of technical errors.

- The student digital materials are free of spelling and grammatical errors. Ancillary materials, such as parent materials, are also free of spelling and grammatical errors. For instance, the eText for Investigation 1, Experience 1, states, "What makes life possible? As diverse and remarkable as living things are, chemistry is at the heart of what makes life possible. Every living organism, from an oak tree to cats and dogs, is made up of atoms linked and arranged in unique ways to produce the molecules of life. To understand the living world, we must first explore the remarkable chemistry that makes life possible." Content is free of typographic errors.

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- Assessments in the teacher materials are free of wrong answer sheets to problems. All material is researched by a team of editors. For instance, the answer key for a sample Investigation provides this question/answer prompt: "What are the four major types of biomolecules? The four major types of biomolecules are carbohydrates, lipids, proteins, and nucleic acids." Answer sheet responses to this question are accurate.
- The hyperlinks within the materials are free of errors and work appropriately and smoothly. For example, in Investigation 3: Cell Growth and Differentiation Experience 1: Cell Growth and Division, Chromosomes: all embedded links (to key vocabulary terms, the notebook function, and text-to-speech, etc.) are fully functional. The links connect teachers to guiding documents such as TEKS and SEPs alignment, scope and sequence, teacher guidebook, and other components. These links are quick-and-easy to use and are free from spelling, grammatical or scientific errors.

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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 meet the criteria for this indicator. Materials are intentionally designed to engage and support student learning with the integration of digital technology.

The 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.

- The digital materials enhance student learning and engagement by providing anchoring phenomena that include video clips throughout each Investigation. The materials follow the 5E process, where introductions of key concepts are predictable and logical. For instance, the anchoring phenomenon for Investigation 12 provides an opportunity for students to examine why the blue-footed booby bird "dances" by watching a video observing the behavior. Also, in Investigation 1: Biomolecules and Cells, Biomolecules and Cells, the unit is introduced with the concept of bioluminescence. Students have "Explain" questions that ground student thinking for the remaining 5E interactivities.
- The digital materials include embedded tools such as editable quizzes and tests for each Investigation. These quizzes and tests also include a question bank for teachers to add/exchange questions to assessments. Every Investigation also has an embedded interactive experience for students. For example, during investigation 12, there is an interactivity for students to complete about the adaptations of sense organs as they are used by predators to hunt and prey to evade capture.
- Several of the items that students complete, such as the CER explanations, the lab investigations, and the exams and quizzes can be done in print or online. However, the interactives and the workbooks are meant to be completed online only. The materials do not replace print materials but instead supplement it. For example, the Hook and Inspire section for

Animal Systems has PhET simulations on color vision and neurons. It also includes animations from reputable sources such as the Amoeba Sisters and Fuse School. There are also video links from well-known organizations such as PBS and Bozeman Science.

- The material supports differentiated, inclusive student learning through integrated accessibility. For example, the material includes a text-to-speech option in each investigation (such as Investigation 1: Biomolecules and Cells, Experience 1: The Molecules of Life, Water), with chunking of text in reader-friendly font, as well as highlighting and bold of key vocabulary words. These embedded supports help draw attention to key concepts, drawing attention in ways that highlight core content to all readers.

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

- Each Investigation contains an anchoring phenomenon in which students utilize science and engineering practices to develop a well-rounded understanding of conceptual knowledge related to the phenomenon. For instance, students begin Investigation 13 by watching a video titled, "Why do I need a flu shot every year?" As they progress through the Investigation, students complete worksheets that scaffold their models of the phenomenon based on the knowledge they have obtained in each Experience. At the end of the Investigation, students piece together their knowledge to construct a final model of the phenomenon. Also, in Investigation 5: DNA Anchoring Phenomenon: How can we be sure this fish is cod?, students are instructed to record observations and craft a hypothesis given the video introduction. Additional tasks include "inferring," "applying scientific reasoning," and later identifying variables, gathering data and analysis; all processes of a science and engineering approach. Another example of digital application between SEP 1G (develop end-used models to represent phenomena) and anchoring phenomena is the visual analogy animation for growing pains in children. While students watch the 2-minute video, they make a t-chart to record the analogy of the town to parts of the cell. Students then revisit the anchoring phenomena using the new analogies.
- Each Investigation contains activities called Interactivities in which students utilize digital materials to answer questions while developing their science and engineering practices. For instance, the Interactivity for Investigation 9 Experience 2 (Allele Frequencies) provides students with a scenario in which they are tracking populations of different colors of snails. Students must determine dominant and recessive alleles and calculate the number of alleles in the population, along with how the allele frequency changes throughout generations. Once students complete their calculations, they answer questions, including developing a hypothesis about why the allele frequency changes over time. Also, in one of the Interactive activities (Cholera outbreak), students are first provided background information on the illness. Students must use the map of the community to determine how the disease might have spread to different parts. There is a section for students to type their notes for the people they would interview. Afterward, they draw conclusions by answering a couple of questions. Next, students test water hotspots, then evaluate their conclusions and communicate results.
- The materials include virtual labs called BeyondLabz that students can complete as part of the Exploration portion of the experience. For example, the Fish Cousins lab can be done completely online, with entire labs being simulated for students. All experiences also contain video explanations of the related information to that portion of the investigation. For example, the evidence of evolution video in Experience 2 of Investigation 10 explains the Hox gene as evidence for a common ancestor, and students are asked to gather evidence for why it is.

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

- Lab activities are formatted through Google Docs, which contains a sharing feature that allows students to collaborate with each other. Additionally, if documents are shared with the teacher, the teacher may add feedback to students through the comment feature of the application.
- Teachers can assign discussion boards for students to complete and talk with each other on the Savvas Realize LMS. Students can reflect on learning, share ideas and opinions, or ask and answer questions. For example, in Investigation 11: Plant Systems Experience 1: Plant Systems and Interactions, Experience 1 Review, students may self-reflect on their observations and there are multiple opportunities to 'share out'; this can include a class discussion, small-team 'round robin', or think-pair-share activity. Teachers can choose whether or not to score discussions.
- The materials include a PDF Toolkit, which provides a wide variety of tools for students to collaborate with each other, such as highlighting and drawings. Teachers can also add comments to student work through the PDF Toolkit.
- The teacher guide also provides digital resources found under the "Investigation Assets" and "Assessment Assets" that can help teachers propose guiding questions or redirect student discussions. These resources have an embedded pacing guide that provides options to 'fast track' or refocus on key concepts.
- Teachers are also able to provide separate comments digitally when grading student assessments in the Realize platform. Teachers can preview assignments in progress and provide comments to help students with their work. Teachers can do the same after grading an assignment and reassign the work so that students can improve their grade. When students return to their assignment, they will see the comments from their teacher and be able to respond directly. Students can also address those comments in the assignment before completing and submitting the assignment.

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

- The materials are accessible and compatible with multiple devices, including Chromebooks, iPads, PCs, Apple computers, and smartphones.
- On the login page, there is a link to the system requirements. The materials are compatible with most browsers except for Firefox and some updates to Safari. They do not recommend using an incognito browser, as Savvas may not work correctly. The site predicts around 12 MB of student data usage per day on the website, so high-speed internet is important.
- The materials (found in the link “Getting Started with Texas Miller and Levine Experience Biology" contains significant implementation resources, including the "Savvas LMS Integrations" resource document. In the sub-document, "Share Savvas Content Links With Popular Applications," distinct instructions on how to merge Savvas resources with systems such as Home, Agilix Buzz, Canvas, Schoology, and Google Classroom are present. Also, activities that are present in the Google Docs format (such as anchoring phenomena scaffolding worksheets and lab activity worksheets) may be downloaded for offline use if necessary.
- There is a tab solely dedicated to Canvas LMS support, which is a popular LMS for many schools. The "Realize and Canvas" resource includes specific information about merging the resource and the Canvas LMS. Instructors can find information about how to sync grading, blend assignments in both Canvas and Savvas materials, import digital exams and quizzes, and much more. The Realize Reader resource also allows teachers and students to access eTexts and take notes, highlight, save bookmarks, and respond to prompts whether online or offline.

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- The materials also include shared links to assignments that can be added to Seesaw, Microsoft Teams, virtual chat rooms, or collaborative documents.

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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

The materials meet the criteria for this indicator. 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.

- Each Experience within an Investigation in the online platform includes relevant TEKS, SEPs, and ELPS correlations along with an editable Experience planning document that promotes flexibility in planning lessons and units. Also, each Experience within an Investigation has its own webpage that includes relevant teaching and planning guides, videos, activities, labs, editable presentations, eText excerpts, content summaries, and assessments. This allows for ease of access and implementation, as all digital materials can be found in the same place.
- The scope and sequence for all digital products is fully TEKS-aligned, and all activities are graphically organized in the Course and Pacing Guide. This makes it easy for even new or pre-service teachers to find the proper resources and receive instructions on differentiated implementation. For example, in the Getting Started with Texas Miller & Levine Experience Biology tab, there is a "Designed for Texas" document that systematically illustrates the structure of all 5E units and the resources available to teachers. It strategically guides teachers for the timing and implementation strategies of the materials.
- Within the Getting Started guide, there are general explanations for the tools being used and the general structure of the chapter. It contains an easy-to-use quick-start guide that offers three steps to accessing information or planning. The Getting Started Guide includes three correlation documents: TEKS Biology Correlations, ELPS Biology Correlations, and Cross-Content Standards Correlations in addition to references to the TEKS and ELPS listed on each investigation. The Getting Started webpage has a specific guide to planning built in so teachers

can focus on the basics or pick extra items if they have time. This planning guide also includes suggesting the timing of specific parts of lessons, making it more accessible to a first-year teacher or someone who teaches multiple preps.
- The digital and online components mirror the print features, which are all developmentally appropriate. For example, the digital experience handbook for Inheritance and Variation of Traits begins with grade-level appropriate objectives and vocabulary terms right after the introduction of the anchoring phenomenon of why organisms don't look exactly like their parents.

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

- The Teacher Guide for each Investigation provides an overview of learning opportunities for the Investigation, including a recommended progression of activities. For instance, the Teacher Guide for Investigation 1 Experience 1 recommends that teachers assign an online activity called Interactivity, which discusses the four levels of protein structure, during the Explore stage of the Investigation. Also, the investigation on Mendelian Genetics shows an available interactive for dominant and recessive as well as a Beyond Labz simulation on an introduction to genetics.
- The 'Realize Canvas Integration' document focuses on the most common LMS, Canvas. Here, the document has embedded links for a variety of subtopics, such as how to import specific images or videos, how to embed labs and assignments, and much more. These guiding documents are easy to use and provide simple, step-by-step instructions to maximize teacher time.
- The 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. There are also several videos embedded into the Getting Started webpage that include navigation and how to link Savvas to another LMS, such as Google Classroom and Canvas. For example, “My Savvas Learning” links teachers with a variety of resources, addressing issues from linking to school learning management systems, differentiating labs, quizzes and exams, and syncing grading systems for maximum efficiency. Also, the Digital User Guide provides information for teachers to activate the Virtual Program training, which "prepares teachers for achieving the best results with Savvas curriculum."

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

- The materials include a Realize Parent Letter that provides an overview to families and caregivers of how to access the program from home, how to log in and see data, tips for adults to work with their children, and a Q&A section for troubleshooting. It also provides a direct link to Savvas Technical Support service for any issues that families/caregivers may have with access. The letter also provides seven tips for caregivers to support students: set clear expectations, take a break, plan for attention span, enjoy the sunshine, practice mindfulness, love over lessons, and keep up communication.
- The materials include a digital Parent User Guide that provides an overview of the following topics: logging into the online platform, how to navigate the home page, viewing and accessing assignments, completing and submitting assignments, grades and teacher feedback, browsing program content and offline access, and technical support.

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- In the tab for Getting Started with Texas Miller & Levine Experience Biology, there is a section called Navigational Support that includes tabs for trouble-shooting technology or digital issues, with easy-to-implement solutions and workarounds.