Savvas Learning Texas Experience Chemistry

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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 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 and 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 materials consistently provide students with multiple opportunities to develop, practice, and demonstrate mastery of scientific and engineering practices. For example, in Investigation 7: Chemical Reactions, Experience 1: Modeling Chemical Reactions, one lesson objective is to "Develop a basic conceptual and mathematical model for the generation of energy from the reaction of two substances." Throughout the 5E lesson plan, students observe, interact with, develop, evaluate, and use different types of models to represent and experience chemical reactions.
- The materials provide several "experiences" per "investigation" that allows students the opportunity to develop, practice, and master SEPs. Each experience includes an anchoring phenomenon, inquiry lab, virtual lab, claim-evidence-reasoning prompt, writing about various science prompts, and the opportunity to revisit anchoring phenomena after showing mastery of learning with a quiz.
- Activities come with student handouts that inform students of the SEPs for the activity. For example, the Flinn Guided Inquiry Lab: Types of Chemical Reactions lists "planning and conducting investigations, developing and using models, analyzing data, and using mathematical

calculations" as the SEPs that the lab focuses on. After completing the lab, students answer questions related to the SEPs used in the investigation. For example, "Balance each chemical equation performed in the experiment," targets SEPs for using mathematical calculations.

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.

- The materials organize investigations in a strategic order of chemistry concepts to systematically develop students' content knowledge and skills. The "Texas Experience Chemistry Teacher Guide eTexts" provides a preview of the investigation's lesson experiences and objectives that explains how skills and concepts developed in Investigation 2, namely the use of models, such as "Bohr model diagrams, electron configurations, and Lewis dot structures" to understand an atom's subatomic particles, will "serve as background needed for investigation 3 and 4."
- The materials center each Investigation around an "Anchoring Phenomena" that engages students' prior knowledge and provide multiple opportunities to strategically and systematically develop content knowledge and skills through diverse activities. For example, in Investigation 5: Physical Properties of Substances, Experience 1: States of Matter, students first "Engage" with everyday phenomena such as phase changes, then "Explore" the states of matter with an inquiry lab, virtual lab, or pHet simulation. Students then "Explain" the concepts they have learned by completing a "Claim-Evidence-Reasoning" prompt followed by an "elaborate" activity where students can discuss the trends they have observed. Finally, students "Evaluate" their understanding by taking a quiz and revisiting the Anchoring Phenomenon.

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

- The materials provide students with consistent and sufficient opportunities to ask questions and plan and conduct investigations. For instance, in Investigation 1: Matter, Energy, and Change, the materials provide students with four experiences, in which each experience includes an Inquiry Lab activity. In experience 1, the materials prompt students to develop "a procedure to determine how much-stored energy is in fuel samples." The materials provide teachers with guidance to "encourage students to ask questions about heat transfer," as well as suggesting question frames to provide to students.
- The materials provide a series of suggested instructional activities to help students master the TEKS. For example, each experience has an inquiry lab, a phenomena video and/or demo, a simulation, a claim-evidence-reasoning, an animation, a discussion rubric, and an opportunity to revisit the anchoring phenomenon. This provides students with multiple opportunities to engage in scientific investigation, open-ended inquiry, and problem-solving, resulting in the progress of their developing understanding of chemistry concepts.

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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 provide an "Anchoring Phenomenon" for each investigation that students will consistently reflect on as they move through the experiences for an investigation. For example, in Investigation 12: Acid-Base Chemistry, the materials provide students with an "Anchoring Phenomenon" about the effects of decreasing pH on marine organisms.
- As students move through the individual experiences within an investigation, the materials provide students opportunities to "Revisit the Anchoring Phenomenon" in the "Evaluate" tab of each experience. In Investigation 6: Chemical Quantities, Experience 1: The Mole Concept, "students can complete the reflection prompt, where they will unpack and make sense of the Anchoring Phenomenon based on practices and understandings that have been reinforced in the experience."
- The "Texas Experience Chemistry Teacher Guide eTexts" provides teachers with guidance on how to scaffold scientific and engineering practices. For example, Investigation 10: Thermochemistry, Experience 1: Energy in Chemical Bonds states, "As students continue to increase their skill in developing scientific explanations, have students review the concepts

introduced in this experience…This will help them better understand how to relate scientific topics to real life."

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

- Materials intentionally leverage prior knowledge and experiences related to phenomena by offering multiple access points to engage students with familiar phenomena. For example, in Investigation 11: The Progress of Chemical Reactions, the materials provide a video for students to watch on the Anchoring Phenomenon, "How do limestone caves form?" and then discuss what they have seen. The materials also provide teachers with suggestions for related phenomena, such as encouraging students to research a local Texas cave and to "share experiences they may have in exploring these landforms."
- The materials provide opportunities for students to activate prior knowledge within the Engage and Explore tabs in each experience. For example, in Investigation 6: Chemical Quantities, the Engage tab in Experience 1: The Mole Concept includes "Everyday Phenomenon: How can you measure matter?" that is meant to "engage students with this demonstration of an everyday phenomenon to introduce the concept of the mole."
- Students are given opportunities to access prior knowledge when completing activities within Experiences. In the Explain tab under Investigation 6: Chemical Quantities, Experience 1: The Mole concept, students are asked to "brainstorm what they already know about moles" before viewing the animation "Moles are Many" and then "review the list after the animation to revise inaccuracies and add new information they learned."

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

- The materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon by providing an "Encounter" page in the teacher guide of each investigation. The "Encounter" page shows the teacher a summary of the anchoring phenomenon activities, the goals for the activity, and the science and engineering practices correlated to the phenomenon activities.
- An "Investigation Planner" is included in the "Texas Experience Chemistry Teacher Guide" which outlines the goals of the phenomena and provides a list of supporting activities. For example, in Investigation 12: Acid-Base Chemistry, an interactivity titled "Exploring Acid Strength and Concentration" is provided and states, "In this interactivity, students investigate the relationship between acid strength (pH) and concentration."
- The materials provide the teacher with the scientific concepts and goals behind each phenomenon and engineering problem. For example, in the teacher guide, teachers can read the background information for each experience as well as a detailed overview of the activities in each experience as well as information about the phenomenon and engineering connections.

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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 an 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 provide students with opportunities to build and connect their knowledge and skills within units. Each experience begins with an Anchoring Phenomenon that students relate to and then build content knowledge around. For example, Investigation 1: Matter, Energy, and Change introduces Anchoring Phenomenon: Why are wildfires so difficult to extinguish? Students are then provided content knowledge before being asked to revisit the anchoring phenomenon.
- The materials provide students with opportunities to build and connect their knowledge across units. Each investigation provides an Investigation Overview that includes a section titled TEKS Progression. This section explains how each investigation “connects to what students learned” in earlier Texas Essential Knowledge and Skills. For example, in Investigation 5: Physical Properties of Substances, Experience 4: Comparing Metals and Nonmetals, students engage with previously learned TEKS 6D “describe the structure of atoms and ions…” by discussing metal properties that arise from delocalized electrons and reminding students of the “similar structure of metal atoms and ions in terms of describing and comparing masses, electrical charges, and locations of protons, neutrons and electrons in the nucleus of the electron cloud.”

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

- The material is intentionally sequenced to allow for a deeper understanding of the content being presented. In Investigation 3: The Periodic Table, students begin developing a broad understanding of the organization of the Periodic Table based on patterns and then apply what they learned to build an understanding of organization based on varying periodic trends.
- The materials follow a 5E lesson progression that scaffolds learning to allow for deeper understanding. For example, in Investigation 4: Chemical Bonding, Experience 1 Ionic Bonds, students begin with an Anchoring Phenomenon and then Engage with everyday phenomena. Students will then Explore the content with a Characteristics of Ionic Bonds Inquiry Lab before moving on to the Explain portion, where electron dot structures will be modeled. Students will then elaborate on their learning before being Evaluated with a quiz and then revisiting the Anchoring Phenomenon.

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

- The Texas Experience Chemistry Teacher Guide eText provides teachers with an Investigation Overview that clearly and accurately shows the TEKS covered in each Investigation and Experience. For example, in Investigation 6: Chemical Quantities, the Experience Planner includes TEKS 8C Calculate percent composition of compounds. This TEKS is revisited in the Determine Empirical Formula Inquiry Lab in Experience 3: Percent Composition and Empirical Formulas.
- A list of Science and Engineering Practices is also provided in the Investigation Overview for each Investigation. For example, in “Investigation 12: Acid-Base Chemistry, the SEPs listed include 1G, develop and use models to represent phenomena, systems, process, or solutions to engineering problems, and 2C use mathematical calculations to assess quantitative relationships in data.
- The Texas Experience Chemistry Handbook eText provided for students includes labeled SEPs applications throughout each Experience. For example, in Investigation 8: Stoichiometry, students are asked to construct an explanation, use mathematics, apply mathematical concepts, and analyze data.

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

- The materials include mastery requirements within the boundaries of the main concepts of the course by providing lessons that have the TEKS listed within the Texas Experience Chemistry Teacher Guide eText. For instance, in Investigation 5: Physical Properties of Substances, the TEKS Progression section of the Experience Planner includes several TEKS that students will use during the Investigation, such as TEKS 7D, "analyze the properties of ionic, covalent, and metallic substances in terms of intramolecular and intermolecular forces.”
- The materials provide specific learning objectives under the Objectives section of the Experience Planner. For example, in Investigation 6: Chemical Quantities, Experience 1: The Mole Concept,' student learning objectives include "explain the relationship between the mole and Avogradro's number" and “use the periodic table to find the molar mass of elements and compounds.”

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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.

- Materials include an Investigation Overview' at the beginning of each Investigation that provides the teacher with vertical alignment guidance, which highlights the alignment of course-appropriate prior knowledge and skills. For instance, in Investigation 1: Matter, Energy, and Change, the materials provide teachers with a TEKS Progression section that shows teachers the 6-8 science concepts and skills that connect to the TEKS of the current Investigation.
- The materials help support teachers' understanding with a Teacher Background section at the beginning of each Experience within the Texas Experience Chemistry Teacher Guide eBook. For example, in Investigation 6: Chemical Quantities, Experience 3: Percent Composition, the teacher background knowledge gives specific lesson expectations, such as calculating the percent composition of compounds, and what prior knowledge learners should come into the experience with, such as calculating percentages and proportional reason strategies.

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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.

- The Teacher Background section includes common misconceptions that students may have. For example, in Investigation 7: Chemical Reactions, Experience 1: Modeling Chemical Reactions, the materials state that “students may have difficulty accepting collision theory because they tend to visualize atoms and molecules wedged together with no spaces between them.” It goes on to address the misconception by stating that the teacher should “remind students of their previous knowledge of the kinetic theory…”
- The materials provide teacher support for all level learners within each Experience in an Investigation in the Texas Experience Chemistry Teacher Guide eText. For example, in Investigation 1: Matter, Energy, and Change, Experience 2: Modeling Energy, there is a section in the Assess Texas’s Energy Supply Explore activity titled Differentiated Instruction that provides guidance on supporting struggling students by helping them interrupt information and supporting advanced students by having them complete content-related research.
- The materials include support for English Language Proficiency Standards within each experience by providing suggestions for the teacher to support each ELPS tier. For example, in the Conservation of Matter Experience Handbook located in Investigation 1: Matter, Energy, and Change, Experience 3: Conservation of Matter, teachers can support beginning emergent bilingual (EBs) students by “providing students their own set of term cards” or support advanced EBs by “guiding student pairs to take turns reading the experience out loud.”
- The materials provide teachers with explanations that support the teacher's subject knowledge by providing embedded Professional Development sections in some of the Experience guides. For instance, in Investigation 9: The Behavior of Gases, Experience 2: The Gas Laws, the materials include a Professional Development section in the Explain portion of the lesson plan that provides teachers with an explanation of the relationship between a gas's volume and pressure in the context of SCUBA diving.

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

- Materials provide teachers with informational guidance documents that explain the intent and purpose of instructional design elements in the Getting Started with Texas Experience Chemistry section. For example, the A Phenomenal Experience document states that “content organized around phenomena maximizes student engagement.” This provides a rationale for the use of the Anchoring Phenomenon and Everyday Phenomenon that is present within each Investigation and Experience.
- The materials provide a Texas Experience Science Research-based Pedagogy document that explains the 5E Model of instruction, Phenomena, and Inquiry-based Science. The materials list the benefits of the inclusion of each of these instructional design elements, such as “being student-centered, engaging students, promoting active learning, and providing real-world applications.”

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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 materials provide a definition of sensemaking and identify specific sensemaking behaviors of students. For example, the Texas Experience Chemistry Teach Guide About This Book includes a "Student Sensemaking" section stating, "making sense of phenomenon is an ongoing process that requires multiple Experiences. Throughout this program, materials consistently support students' sensemaking through reading, writing, thinking, and acting like scientists and engineers."

- The materials consistently provide learning activities that support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. For example:

- The materials provide an Anchoring Phenomenon section that students continually interact with and revisit as the Investigation progresses. In Investigation 3: The Periodic Table, students view an Anchoring Phenomenon video and discuss questions related to the video, such as “What are coins made of?” and “What properties do these kinds of metals share?” Students then engage in Authentic Reading, which introduces man-made element 115 and discusses how the element was made and “why scientists make new elements.” After watching the video and reading the text, students review these materials before completing a Claim-Evidence-Reasoning activity to build understanding. Finally, students work in pairs in their Experience Handbook to answer reflection questions that relate to the Anchoring Phenomenon.
- The materials include Inquiry Labs that allow students to explore scientific concepts by acting as scientists and engineers. For example, Investigation 1: Matter, Energy and Change, Experience 1: Introduction to Energy allows students to “develop a procedure to determine how much stored energy is in fuel samples.” Students first read a lab background to prepare for the investigation, then view a demonstration video to understand the procedures. While completing the investigation, students write down their model of how energy was transformed in the burning of the wood and then “think about ways that you can improve or refine your model.”

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

- The materials provide students with multiple opportunities to engage with grade-level appropriate texts to gather evidence and develop an understanding of concepts.
  - The Experience Handbook for Investigation 8: Stoichiometry, Experience 1: Quantifying Reactants and Products includes activities that provide students with the opportunity to construct explanations, interpret chemical reactions, use data from graphs, and make predictions after they have read the provided passages. For example, after reading about the law of conservation of mass, students use the new knowledge to “interpret the chemical equation for the combustion reaction involving charcoal to explain what happened to the extra mass.”
  - In Investigation 10: Thermochemistry, the materials provide students with a variety of activities to support the scientific texts. This includes Virtual Nerd Videos to “reinforce how to plot a double line graph,” which was shown in the Experience Handbook for this Investigation, virtual labs to help students identify the difference between endothermic and exothermic reactions, a Writing About Science activity that allows students to “research a chemical reaction that produces rust and communicate explanations of how rusting can be exothermic” and a PBL Worksheet that includes questions for students to connect their learning to the worksheet, such as “Why do you think it feels hotter outside when the air is more humid?”. These multiple and multi-modal texts help students develop an understanding of concepts.
- The materials provide a Vocabulary Support section at the beginning of each Investigation to help students develop an understanding of concepts. For example, Investigation 5: Physical Properties of Substances states that students should collaborate in small groups to create a semantic map, which is “a visual display which connects a word or phrase and a set of related words and concepts.” Students continue to interact with the semantic map by revisiting it as the Investigation continues and revising it to add new concepts.

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

- Materials 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. The Experience Handbook provides opportunities for students to engage with content and various modes of communication.
    - For example, Investigation 1: Matter, Energy and Change, Experience 4: Heat Transfer and Thermal Equilibrium allows students to use various modes of communication by having them “use rations to calculate,” “sketch a graph by hand or by computer” and “develop an explanation using scientific principles.”
- The materials provide students with opportunities to engage in Performance Based Assessments that allow students to use various written and graphic modes of communication. For example, the Performance Based Assessment: Cartesian Divers has students complete a hands-on activity of making and observing Cartesian Divers before they are asked to design their own. Students must answer questions, describe relationships, design products, and perform calculations.

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.

- The materials support students to act as scientists and engineers by providing them with opportunities to complete Engineering Design Challenges within each Investigation. For example, Investigation 12: Acid-Base Chemistry, Experience 1: Defining Acids and Bases provides students with the opportunity to engage in phenomena and the engineering design process by having students “propose methods of measuring pH by developing their own pH indicators from natural ingredients.”
- The materials support students to act as scientists and engineers who make sense of concepts and productively struggle by providing opportunities for students to complete activities that prioritize making evidence-based claims. For example:
    - Students complete Claim-Evidence-Reasoning activities within each Investigation. In Investigation 13: Oxidation-Reduction Reactions, Experience 1: Oxidation vs. Reduction, students complete a Claim-Evidence-Reasoning activity to “build a scientific argument about the corrosion of iron.” Students then support their claims “with evidence and scientific reasoning.” Finally, students evaluate their evidence through peer feedback and then write an improved draft of the argument.
- The materials support students to act as scientists and engineers who can learn from engaging in phenomena. Each Investigation begins with Anchoring Phenomenon and provides multiple opportunities for students to engage with the phenomenon. For example:
    - Investigation 2: Atomic Structure begins with the Anchoring Phenomenon of “What causes the colors in a fireworks display?” Students watch a video of a fireworks show and record their observations before sharing their observations with a partner and asking questions. Students then interact with an Authentic Reading activity to construct explanations and complete a Modeling activity to “develop a model of the phenomenon they observed.” Students finally reflect on and revisit the Anchoring Phenomenon “to make sense of the Anchoring Phenomenon, based on practices and understandings that have been reinforced in the experience.”

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- Students continually engage in phenomena throughout each Experience in an Investigation. Each Experience includes an Everyday Phenomenon that helps students understand the concepts being studied. Investigation 2: Atomic Structure, Experience 1: Modeling Atoms has the teacher complete a demo called “What’s inside the box” so that students will “understand how scientists are able to probe the interior of atoms.”

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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.

- The materials include Claim-Evidence-Reasoning activities that prompt students to use evidence to support their hypotheses and claims. For example, in Investigation 3: The Periodic Table, Experience 3: Periodic Trends, "students write an argument in which they make a claim about the relationship between the effective nuclear charge and electron shielding. They then support their argument with observed evidence and scientific reasoning."
- In the Writing About Science activities, students use information and evidence to support their claims. For example, in Investigation 4: Chemical Bonding, Experience 1: Ionic Bonds, the materials instruct students to "use the information provided and information gathered from authoritative sources" to construct and support explanations of "how the bonding in ionic compounds contributes to their high melting point and brittle crystalline structures…."
- The materials include Engineering Design Challenges, which allows students to define a problem, identify criteria and constraints, conduct research, design solutions, plan and carry out investigations, and evaluate engineering designs. This activity allows students to formulate their

hypothesis and support it with evidence from their experiments. Students compare results and use the evidence from other teams to refine and evaluate their designs.

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

- The Texas Experience Chemistry Handbook eText includes embedded Build Vocabulary and Use Vocabulary activities that prompt students to develop and utilize scientific vocabulary in context as they engage with visuals, text, and questions. For example, Investigation 5, Physical Properties of a Substance, Experience 5: Water and Aqueous Systems, includes a Use Vocabulary listening activity that states, "read aloud or listen to the question at the bottom of the page. After you read the question, discuss some answers with a small group. Then tell the group the properties of electrolyte solutions and some properties of nonelectrolyte solutions."
    - The materials include pop-up definitions for blue-colored words in the text, such as electrolyte and nonelectrolyte. The definitions of scientific vocabulary words are found throughout the text and use the same blue color and pop-up box definitions.
- Each Experience within an Investigation includes a Writing About Science activity that allows students to use scientific vocabulary as they complete writing prompts in which they apply what they learned throughout the Experience. For example, Investigation 2: Atomic Structure, Experience 4: Electrons in an Atom has students answer questions about atom properties: size vs. mass. The students use scientific vocabulary when they "conduct research to learn more about the relative sizes, or atomic radii, of atoms. Find out how scientists define this property and identify specific examples. Verify the claim that atomic size tends to decrease across a row of the periodic table."

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

- The materials regularly integrate discourse in the Peer Review Rubric activity found in the Elaborate section of an Experience. For example, in Investigate 8: Stoichiometry, Experience 1: Quantifying Reactants and Products, students "use the rubric as a scoring guide to evaluate their classmates' models and explanations of the reaction between chlorine and aluminum." The teacher is directed to "remind students that the model should reflect conservation of mass and the proportional relationship between reactants and products in the reaction, and to consider that in their scoring." This allows students to develop their content knowledge while engaging in discourse.
- Claim-Evidence-Reasoning activities provide students with opportunities to engage in argumentation. For example, in Investigation 5: Physical Properties of Substances, Experience 1: States of Matter, students "write arguments in which they make a claim about the states of matter of a substance, its properties, and the forces between particles of the substance."
    - Students then engage in discourse by discussing "the trends they observed and the claims they made in the CER activity," relating Intermolecular Forces to States of Matter, and assessing their performance as they work in groups of two using the Discussion Rubric provided in the Discussion Rubric activity.

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

- The materials provide opportunities to revisit the Anchoring Phenomenon and construct arguments to justify explaining the phenomena. For example, in Investigation 2: Atomic Structure, Experience 2: Atomic Emission Spectra and the Bohr Model, the Revisit Anchoring Phenomenon activity states, SEP Construct an Explanation: Compare the colors of two different fireworks produced by heating different elements. Research each element's emission spectrum. Develop an explanation supported by your data and consistent with scientific theories that relate the energy, frequency, and wavelength of light to the quantization of energy in each element's spectrum."
- The materials provide an Engineering Design Challenge that prompts students to construct written arguments to justify explanations for their proposed solutions. For example, in Investigation 7: Chemical Reactions, Experience 3: Reactions in Aqueous Solutions, the Water Purification challenge has students "carry out an experimental investigation to develop a process of water purification and assess benefits, costs, and whether or not the process was completely successful."
    - Students define the problem, identify criteria and constraints, obtain information, construct an explanation, design a solution, conduct an investigation, and then test, evaluate, and refine their solutions.
    - During the SEP Evaluate Your Solution, students review their group's criteria and constraints and determine if their proposed solution was successful using evidence to support their claims. Afterward, students compare their results with their classmates and discuss improvements to meet the criteria and constraints better.

Savvas Learning Texas Experience Chemistry

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

Evidence includes but is not limited to:

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

- Materials provide guidance on anticipating students' responses by providing teachers with examples of possible student responses. For example, in Investigation 5: Physical Properties of Substances, in Experience 1: States of Matter, the materials provide two possible claims students can make while constructing their Claim-Evidence-Reasoning arguments.
    - The CER activity also includes an Address Misconceptions subsection that states, "Some students may incorrectly think that materials can have properties of only one state of matter." This section provides question prompts such as "ask students how the properties of the two states of matter differ" that address common misconceptions and deepen student thinking.
- Materials provide teacher guidance on using questioning to deepen student thinking by providing prompts and questions for the teacher to ask during activities, such as Everyday Phenomenon. For example, the Everyday Phenomenon: Do all metals react the same in redox reactions? Activity in Investigation 13: Oxidation-Reduction Reactions, Experience 2: Modeling Redox Reactions includes questions and prompts to pose to students during the activity guide to help them relate the phenomenon to prior knowledge, to make connections to the Anchoring Phenomenon, and to make connections to the learning from the previous Experience. Students

view a teacher's demonstration, summarize what they observe and answer questions such as “Why do you think a reaction took place in one Petri dish but not in the other?”

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

- The materials include teacher guidance on scaffolding and supporting students' development and using scientific vocabulary in context. For example, Investigation 8: Stoichiometry, within the Texas Experience Chemistry Teacher Guide eText, includes a Vocabulary Support segment that instructs the educator to have students build a semantic map to connect word phrases with meanings as they encounter new vocabulary.
    - This section also includes a subsection for supporting Emergent Bilingual students titled Support English Learners. The guidance suggests that the teacher should “encourage students to make flashcards with sample calculations or equations that circle or highlight the part that is reflected for each vocabulary term.”
- Materials include teacher guidance on supporting students' use of scientific vocabulary in context by providing guidance for implementing instructional strategies that support language demands in science. For example, in Investigation 3: The Periodic Table, Experience 3: Periodic Trends, under the Discussion Rubric activity, the materials provide a Professional Development call-out that targets Support Language Demands in Science. The guidance in this call-out directs teachers to instruct students to use scientific and academic language to communicate their ideas succinctly. To support students' use of discipline-specific vocabulary, the materials suggest that students write a script "of how they can present their CERs to members of the scientific community, stressing that they should use the appropriate and concise terms."

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

- The materials guide the teacher in preparing for student discourse by using evidence to construct written and verbal claims during the Discussion Rubric activities in each Experience. For example, in Investigation 10: Thermochemistry, Experience 2: Enthalpies of Formation and Reaction, materials include guidance for the Discussion Rubric activity that directs teachers to ensure that students use their evidence from the CER worksheet to frame their discussion. The materials also provide prompts such as “ask students to write the differences between ionic and covalent bonds and explain why each difference may or may not contribute to the differences in heat formation seen for each compound.” The rubric for the activity includes criteria for using evidence during the student discussion.
- Materials provide teacher guidance on supporting students in using evidence to construct written claims during Writing About Science activities offered in various Experiences. For example, in Investigation 4: Chemical Bonding, Experience 1: Ionic Bonds, the materials provide the objective of the activity, the research skills and content knowledge that the teacher should look for from student work, a grouping strategy, and suggestions for different types of student products, such as more open-ended or more guided. The materials explicitly direct teachers to look for how students "use the research to construct and support explanations of how the bonding in ionic compounds contributes to their high melting points."
- Claim-Evidence-Reasoning activities can be found within each Investigation throughout the materials. The CER activities allow students to use evidence to construct written and verbal claims and provide teacher guidance for facilitating this. For example, Investigation 3: The

Periodic Table, Experience 3: Periodic Trends includes the CER activity Effective Nuclear Charge and Electron Shielding, where students “look for patterns in the modern periodic table” and “write an argument about whether groups have similar physical characteristics.” The materials support the teacher by including grouping strategies, questions, and prompts such as “encourage students to think about what they learned” in previous activities and apply it to the CER activity.

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

- The materials include Claim-Evidence-Reasoning activities that allow students to share their thinking and find solutions. Each CER activity includes detailed teacher support and guidance for facilitation. For example, Investigation 5: Physical Properties of Substances, Experience 1: States of Matter includes a CER activity titled Related Intermolecular Forces to States of Matter, where students “write arguments in which they make a claim about the state of matter of a substance, its properties, and the forces between particles of the substance.” This section includes example claims with evidence for the teacher, as well as Address Misconceptions and Assess on the Spot subsections that allow the teacher to ask students questions such as “What can be used as evidence of the relationship between states of matter and the strengths of intermolecular forces in substances?”
- The materials include Scaffolding Science and Engineering Practices opportunities throughout the experiences that provide teacher support and guide teachers in facilitating the sharing of students’ thinking and finding solutions. For example, Investigation 10: Thermochemistry, Experience 1: Energy in Chemical Bonds includes an Experience Handbook activity titled “Energy in Chemical Bonds.” The materials suggest assigning this reading activity the day before “to help students make sense of the images and text on the indicated pages…” The Scaffolding Science and Engineering Practices subsection in this activity focuses on developing scientific explanations to “better understand how to relate scientific topics to real life.” The materials support and guide the teacher by suggesting that “students review concepts introduced in this experience” and “discuss how each of the concepts can be used to explain phenomena that the students have experienced in everyday life.“
- Each Investigation allows students to share their thinking and find solutions to Engineering Design Challenges. The Texas Experience Chemistry - Teacher eBook provides teacher support and guidance for facilitating these activities. For example, Investigation 7: Chemical Reactions, Experience 3: Reactions with Aqueous Solutions includes the Water Purification Engineering Design Challenge where “students propose solutions supported by data to develop a process of water purification…”This section includes a list of required materials, safety instructions, and strategies, such as reminding students of the difference between criteria and constraints and providing a list of costs for substances used in the water purification process.

Savvas Learning Texas Experience Chemistry

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 that include formal and informal opportunities to assess student learning in various formats. Materials assess all student expectations and indicate which student expectations are assessed. Materials include assessments that integrate scientific concepts and science and engineering practices. Materials include assessments that require students to apply knowledge and skills to novel contexts.

Evidence includes but is not limited to:

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

- The materials include a variety of diagnostic, formative, and summative assessments. The materials provide quizzes, lab quizzes, writing prompts, and summative tests. For example, in Investigation 1: Matter, Energy, and Change, the materials provide Quiz: Introduction to Energy, Editable Quiz: Introduction to Energy, Revisit Anch.Phen.eText: Introduction to Energy, and Editable Investigation Test: Matter, Energy, and Change.
    - The materials provide different assessment formats, including multiple-choice, writing samples, and short answers. For example, the Editable Investigation Test: Nuclear Processes provides 15 questions, including nine multiple-choice, five short answers, and one multiple-select.
- The materials provide a wide variety of assessments. For example, Investigation 2: Atomic Structure, Experience 2: Atomic Emission Spectra, and the Bohr Model includes an Evaluate Atomic Spectra Inquiry Lab where “students apply scientific practices to observe light passing through a diffraction grating and analyze the observed spectrum of colors,” anInterpret Emission Spectra Analyzing Data activity where “students calculate light waves of different frequencies,” an Emission Spectra of Elements Claim-Evidence-Reasoning activity where “students construct explanations supported by models that connect electron energy levels with the unique emission spectrum produced by each element” and a “Critique Explanations of the

Emission Spectra" Discussion Rubric activity to "analyze how the Bohr model can be used as a tool to connect electrons in an atom to its atomic emission spectrum and how the model can be used to predict the relationship between electrons and energy emissions."

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

- The materials provide a Texas Essential Knowledge and Skills Chemistry Correlation document that tracks "where the TEKS for Chemistry are addressed throughout the course." The teacher can use this chart to identify the Investigation activities that are used to assess the TEKS being targeted. For example, TEKS "6D calculate the average atomic mass of an element using isotopic composition" can be found in Inquiry Lab 2-1, Quiz 2-1, Test INV 2, etc.
- The materials indicate the TEKS being addressed in each activity within an Experience. For example, the Investigation Test in Investigation 11: The Progress of Chemical Reactions indicates TEKS 9A, 13A, and 13C will be covered in this assessment. The Inquiry Lab in the same Investigation indicates TEKS 9A, 13C, 1B, 1C, 1D.
- Materials assess all student expectations and indicate which student expectations are assessed. For example, the materials include the ExamView Test Generator program alongside the curriculum. Within this program, each test generated includes the TEKS being assessed for each selected question within the answer key of the tests.

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

- Materials include assessments integrating scientific concepts and science and engineering practices through various Assess on the Spot activities within the Investigation Experiences. For example, Investigation 12: Acid-Base Chemistry, Experience 2: Acid-Base Reactions includes an Assess on the Spot activity for the Inquiry Lab that states, "As students complete the lab, show them a sample titration curve for a different strong acid and strong base titration. Have them label the equivalence point of the titration on the graph…Give students the opportunity to communicate their explanations individually in a variety of ways, such as by demonstrating the calculations for the class or giving a written or video presentation."
- The materials identify and cover the processing and the context TEKS within each activity in the Evaluate section of each Investigation. For example,
    - The Evaluate activities in Investigation 2: Atomic Structure, Experience 4: Electrons in Atoms include content TEKS "6E Construct models to express the arrangement of electrons in atoms of representative elements using electron configurations and Lewis dot structures," "6B Describe the structure of atoms and ions, including the masses, electrical charges, and locations of protons and neutrons in the nucleus and electrons in the electron cloud," "6C Investigate the mathematical relationship between energy, frequency, and wavelength of light using the electromagnetic spectrum and relate it to the quantization of energy in the emission spectrum," and processing TEKS "3A develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories."
- The materials assess students by integrating scientific concepts and science and engineering practices. For instance, the assessments include a Claim-Evidence Reasoning activity that requires students to apply their knowledge of the science content to construct an argument. For example, in Investigation 3: The Periodic Table, Experience 1: The Periodic Table: An

Overview, students apply their scientific knowledge to ”write an argument about whether groups have similar physical characteristics.”

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

- The materials provide Engineering Design Challenge activities that require students to apply knowledge and skills to novel contexts. For example, in Investigation 1: Matter, Energy, and Change, Experience 2: Modeling Energy, the materials provide the Engineering Design Challenge: Energy Efficient Cookware, in which “students evaluate metals to recommend a design solution regarding energy-efficient cookware.” Students use their knowledge and skills to perform calculations involving heat, mass, temperature change, and specific heat to meet the challenge's criteria.
- The materials allow students to reflect on the Anchoring Phenomenon in the Evaluate section of each Experience. The materials state, “Students can complete the reflection prompt, where they will unpack and make sense of the Anchoring Phenomenon, based on practices and understandings that have been reinforced over the course of the experience.”
- The materials include Performance-Based Assessments within the Assessment section of each Investigation. For example, Investigation 8: Stoichiometry consists of a Performance-Based Assessment titled “The Stoichiometry of Filling a Balloon.” The materials state, “Use this Performance-Based Assessment to assess students’ mastery of the standards. In this activity, students determine the amount of sodium bicarbonate to add to acetic acid to produce a specific amount of carbon dioxide gas.”

Savvas Learning Texas Experience Chemistry

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 student's 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 student's 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 various resources and teacher guidance on leveraging different activities to respond to student data.

Evidence includes but is not limited to:

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

- The materials include Teacher Support documents that guide the teacher in evaluating student responses. For example, the Describe Small-Scale Matter Using the Mole - Inquiry Lab Teacher Support - Open provides sample student answers and sample student data that allows the teacher to evaluate learning and implement further activities based on data obtained from this assessment.
- The materials include a Claim-Evidence-Reasoning rubric that teachers can use to guide students' constructed responses to the Claim-Evidence-Reasoning activities. In Investigation 9: The Behavior of Gases, Experience 3: Ideal Gases, the materials task students with developing "a written argument from evidence that is supported by data and consistent with scientific principles about which of three specific gases behaves most like an ideal gas."
- The materials include answer keys that guide the teacher in evaluating student responses. For example, Investigation 1: Matter, Energy, and Change includes an Investigation Evaluation: Matter, Energy, and Change assessment and provides an answer key along with "scoring notes and remediation strategies found online to assess students' responses and to provide targeted feedback for each item to remediate."

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

- The materials provide videos to support teachers' data analysis of the assessments students complete while working throughout the curriculum. The materials provide an Assessment and Data Support page with links to videos for Data Reporting Support for Teachers. Video support topics include Data overview, how to read the data provided by the materials, how to interpret class results, and how to analyze and interpret data on standards mastery.
- The materials provide differentiation strategies in the Texas Experience Chemistry Teacher Guide eTexts that guide the teacher to respond to students' needs. For example, in Investigation 4: Chemical Bonding, Experience 2: Metallic Bonding, the materials provide guidance to Support Students with Special Needs, Support Less Proficient Readers, make Classroom Modifications (such as "More Open Ended" or "More Guided"), as well as "ELPS Targeted Support."
    - The Classroom Modifications section allows the teacher to modify activities "based on your student's abilities and your schedule…" Based on assessment data, teachers can modify the Compare Metallic and Ionic Substances activity to be More Open Ended, where "students pair and research the reasons that metals make better thermal conductors," or More Guided, where students receive "a prewritten question about the difference between metals and ionic compounds." The teacher can "make a rubric that students can use to critique their peers' arguments (Question 3 on the assignment worksheet)."

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

- Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extensions. For example, in the Evaluate section of Investigation 13: Oxidation-Reduction Reactions, Experience 1: Oxidation vs. Reduction within the Texas Experience Chemistry Teacher Guide eText, the materials include Remediation Suggestions that allow the teacher to plan interventions and extensions based on the student's results on the given quiz assessment. The materials state,
    - **If** students are uncertain about how electrons are gained and lost in redox reactions, **then** direct them to review the explanation using Lewis dot diagrams in the Interactivity, Redox, and Non-Redox Reactions.
    - **If** students are unclear about identifying which reactant is oxidized and which is reduced, **then** tell them to review Sample Problems on page 462 of the Experience Handbook.
    - **If** students are confused about assigning oxidation numbers, **then** guide them through the Sample Problems on pages 465 and 467 of the Experience Handbook, highlighting differences and similarities between finding oxidation numbers in compounds and in reactions.
    - **If** students are finding it challenging to differentiate between redox and non-redox reactions, **then** tell them to review the Interactivity as well as examples on page 468 of the Experience Handbook.

- The informal assessment tool Assess On the Spot (in the Explore, Explain, and Elaborate phases of the 5E instructional model), located in the Texas Experience Chemistry Teacher Guide eTexts, offers a variety of prompts that allow teachers to gather observational data that can be incorporated into planning intervention, either in the moment or for future instruction. For example, in Investigation 9: The Behavior of Gases, Experience 3: Ideal Gases, the Assess on the Spot section in the Gas Behavior in Popping Candy Virtual Lab states, "Ask students to draw a model that shows what causes popping candy to pop in the virtual lab. Collect diagrams to assess students' understanding and clarify misconceptions before moving on to the next activity."

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

- The materials provide resources and teacher guidance on leveraging different activities to respond to student data. The materials include help videos located in the Getting Started with Texas Experience Chemistry Navigational Support section under the Realize Assessment and Data Support tab. These videos include Data Overview Video, Score Data Overview Video, Class Results by Assignment Video, and Class Mastery by Standard Video. Each video guides the teacher through data collection and how to use it after it's been collected.
- The course materials include guidance for accommodations when administering assessments. These accommodations allow students to demonstrate mastery of knowledge and skills in various ways. For example,
    - The Differentiated Instruction that accompanies each Performance-Based Assessment (PBA) suggests accommodations that allow students to focus their efforts on what is being formally assessed and to bypass specific limiting steps that are not being assessed. For instance, in Investigation 2: Atomic Structure, the Differentiated Instruction section within the Performance-Based Assessment titled Evaluate Atomic Structure with Flame Tests suggests that teachers Support Students with Special Needs by having them observe the flame tests "as part of a class demonstration before analyzing and interpreting data to reduce the total number of steps they must work through to complete the assessment." To "Support Less Proficient Readers," the materials suggest providing "an opportunity for the assessment to be read aloud as students follow along."

Savvas Learning Texas Experience Chemistry

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 with learning goals.	M

Meets | Score 2/2

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

Assessments contain scientifically accurate items, 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 with learning goals.

Evidence includes but is not limited to:

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

- Assessments contain items for the course that are scientifically accurate, avoid bias, and are free from errors. For example,
    - The Investigation Assessment for Investigation 8: Stoichiometry contains a variety of question types. The different question types include multiple choice, short answer, fill-in-the-blank, and interpreting graphs.
    - The Editable Quiz: Activation Energy includes a section that states, “Read the passage and use the diagram to answer the next two questions,” and provides an energy diagram of an endothermic reaction. The question asks, “Stages A, B, and C of the endothermic reaction are labeled in the graph. Match the stage of the reaction to each of the terms or phrases listed below. (Write A for Stage A, B for Stage B, or C for Stage C.)” and provides blanks for students to record their answers. The answer key provided for this question shows the correct stages matched with the correct terms.
    - The materials include Claim-Evidence-Reasoning formative assessment activities in the Explain stage of each Investigation. Investigation 1: Matter, Energy, and Change, Experience 4: Heat Transfer and Thermal Equilibrium includes a CER activity that states, “If you pour cold water into a hot metal pan, the water will absorb heat energy from the pan. Will the water come to the same temperature of the hot pan? What is the process? If you put the pan on the stovetop, the stovetop will heat both the pan and the water inside the pan, but it does not heat the two materials at the same rate. Some indigenous cultures heat water by putting hot stones into water that is in a skin bag or wooden bowl.” This statement is scientifically accurate, avoids bias, and is free from errors.

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

- Assessment tools contain clear pictures and graphics that are developmentally appropriate. For example:
    - The quiz for Investigation 4: Chemical Bonding, Experience 4: Intermolecular Attraction includes a graph that is clearly titled, has clearly labeled the x-axis and y-axis, and is aligned to Chemistry TEKS 7D.
    - The Investigation Test for Investigation 2: Atomic Structure includes a question related to atomic emission spectra, and the materials provide clear pictures of atomic emission spectra printouts.
    - The Performance-Based Assessment for Investigation 2: Atomic Structure allows students to conduct flame tests in order to “carry out a small-scale investigation to select the chemicals used in a big fireworks display.” The materials provide an image depicting a sample setup of the lab.
    - The Editable Investigation Test' for Investigation 3: The Periodic Table uses clear and developmentally appropriate graphics. Images include the correct electron configuration of Chlorine through the use of a Bohr model and an excerpt of the periodic table.

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

- Materials provide clear guidance for teachers to consistently and accurately administer assessment tools.
    - The materials provide guidance in the Investigation Evaluation: Atomic Structure tab by stating, “Use these assessment resources to evaluate what students have learned in the investigation."
    - The materials also provide a Texas Experience Chemistry Teacher Guide eText Assessment: Atoms, which states, "Investigation Test for a summative assessment of Investigation2, 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."
    - Within the Texas Experience Chemistry Teacher Guide eText, each Investigation includes a planner section detailing the activities' sequence. For example, within the Investigation 1 Planner, the materials suggest the scope and sequence for each experience included within the investigation, showing when the experience assessment should be administered and an overview of the investigation assessments.

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

- Materials offer accommodations for assessment tools so that students of all abilities can demonstrate mastery of learning goals.
    - Materials provide the teacher with the ability to edit the assessments. Teachers can accommodate based on students' individual needs. For example, the Editable Investigation Test: Acid-Base Chemistry states, “This is an editable and printer-friendly version of the investigation test, which assesses the mastery of concepts presented in

the investigation." This allows the teacher to reduce the number of questions and answer choices to accommodate students of all abilities.

- Materials provide an audio feature on assessments that allows students to listen to directions before beginning an assessment. For example, the Quiz: Modeling Chemical Reactions includes a speaker icon with the word Listen above the directions. When pressed, the speaker reads the directions out loud as students follow along with the written directions.
- The materials include Experience Handbook Assessments that provide teachers with Differentiated Instruction strategies to assess students of all needs. For example, the Investigation 2: Atomic Structure Experience Handbook Assessment requires students to "communicate their explanations for differing colors of fireworks both individually and collaboratively." The Differentiated Instruction section includes information on how to Support Students with Special Needs and states, "Provide students with an opportunity to review their notes and activities from the investigation to use as evidence to support their explanations for the assessment." The materials also include information on how to Support Less Proficient Readers by stating, "provide an opportunity for the assessment to be read aloud as students follow along."

Savvas Learning Texas Experience Chemistry

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.

- The materials provide Remediation Suggestions in each Investigation within the Texas Experience Teacher Guide eBook. For example, the Evaluate section of Investigation 4: Chemical Bonding, Experience 3: Covalent Bonds provides “If…then” statements for the teacher to use after the students have completed a quiz on what they have learned. “If students have a hard time determining whether a covalent bond is polar or nonpolar, then have them review the Calculate Bond Polarity activity and write in their own words a short description of how to find bond polarity.”
- The materials include a section titled Scaffolding Scientific and Engineering Practices under the Explore heading in an Experience. In Investigation 2: Atomic Structure, Experience 1: Modeling Atoms, the Scaffolding Scientific and Engineer Practices section states, “Discuss why hands-on models are useful when learning about complex concepts such as natural percent abundance of an element and calculating the average atomic mass from those abundances. Ask students what other models they have used in their science and math classes and how those models have improved their understanding of challenging topics."
- At the beginning of each Investigation, the materials provide a Vocabulary Support section that includes suggestions for opportunities to Support English Learners. For example, Investigation 2: Atomic Structure states to “consider including props and hands-on activities to allow students to grasp the vocabulary through experience rather than memorization. When discussing the frequency, wavelength, and amplitude of waves, consider a hands-on class activity with two ropes. Have students create two waves with ropes and compare their properties using vocabulary.”

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Materials provide enrichment activities for all levels of learners.

- The materials provide enrichment activities by offering Got More Time? activities throughout each Experience. The materials include two sets of activities in each Experience, Fast Track and Got More Time? activities. Fast Track activities are the core assets that comprise the essential learning of an Experience, while Got More Time? activities are learning experiences that students can choose from or the teacher can assign to enrich learning.
    - For instance, in Investigation 2: Atomic Structure, Experience 2: Atomic Emission Spectra, and the Bohr Model, materials provide one core asset in the form of an Inquiry Lab titled Evaluate Atomic Spectra in the Explore section of the lesson and two choice activities, titled in the form of Analyze Data activities titled “Explore Bohr Model Patterns” and “Interpret Emission Spectra."
- The materials include a section titled “Differentiated Instruction” within the Texas Experience Chemistry Teacher Text eBook. This section provides teachers with tips on how to enrich multiple levels of learners. For example, in Investigation 13: Oxidation-Reduction Reactions, Experience 1: Oxidation vs. Reduction:
    - The materials state “Have students research several redox reactions that occur in everyday life, such as a breathalyzer test, electroplating, or corrosion.” in order to “Support Advanced Students."
    - To “Support Students with Special Needs," the materials suggest that the teacher “tell students that while they are solving problems, they should read the problem out loud and use visual supports to enhance comprehension.”
    - To “Support Struggling Students” the materials suggest that students “use an integer number line to plot and compare the changes in the oxidation number for each element.” The materials also suggest that students who need additional support work in pairs or small groups.
- The materials provide the teacher with recommended targeted instruction and activities with multiple options for all levels of learners. For example, in Investigation 12: Acid-Base Chemistry, Experience 1: Defining Acids and Bases, teachers have the option to implement a guided inquiry lab, open-ended inquiry lab, shortened inquiry lab, or advanced inquiry lab located in the Browse tab of the Texas Experience Chemistry Dashboard. Each version of the Inquiry Lab provides a different level of complexity, from the Advanced Inquiry Lab, where “students will run the Measure Acid Strength Lab with an advanced procedure,” to the Open-Ended Inquiry Lab, where “students explore the Measure Acid Strength Lab with a more open procedure."

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

- Materials provide scaffolds and guidance for just-in-time learning acceleration for all students by offering callouts in the Teacher Experience Chemistry Teacher Guide eText that instruct the teacher on how to support all students. Such as Scaffolding Scientific and Engineering Practices, Address Misconceptions, Sample Problem Support, and Differentiated Instruction during the Explain activities. For example, in Investigation 6: Chemical Quantities, Experience 1: The Mole Concept,
    - The materials direct students to read the Experience Handbook text on The Mole Concept. The materials provide the teacher with instructional strategies for key concepts encountered during students' reading. For instance, to accelerate learning about Measuring Matter, the materials provide guidance for a vocabulary strategy.

- The Scaffolding Scientific and Engineering Practices section instructs the teacher to have students “review the models of molar mass shown in this experience” in order to “better understand how to develop models of their own."
- The Address Misconceptions section provides an analogy with marbles for the teacher to use on students who might struggle with Avogadro’s number and think of it as “a number they enter into their calculator."
- The Sample Problem Support section can be used to reinforce concepts such as conversion factors, scientific notation, and molar mass by providing the teacher with additional information to support student learning. For example, when struggling with molar mass, the teacher can help students by “having them focus on atoms separately, then at the end putting them back together.”
- The Differentiated Instruction section includes instructions to support “less proficient," “struggling," and “advanced” students. For example, during the Claim-Evidence-Reasoning activity, the teacher can support less proficient students by making sure “students understand the atomic number refers to the number of protons in an atom of that element and the molar mass is the mass of a mole or 6.02×10^{23} of the atoms.”

- The Investigations provide support and resources for students who are ready to accelerate their learning. A section for Differentiated Instruction is included in the Experience Handbook section of the Texas Experience Chemistry Teacher Guide eText. This section gives ideas for supporting advanced students. For example, in Investigation 2: Atomic Structure, Experience 1: Modeling Atoms, the materials state in the Differentiated Instruction section to “Teach advanced students to use a mass spectrograph to obtain percent composition data by using the relative abundance percentage (y-axis).”

Savvas Learning Texas Experience Chemistry

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.

- The materials provide an array of developmentally appropriate instructional approaches, such as engaging activities that include everyday phenomena. For example, in Investigation 9: The Behavior of Gases, the learning is centered around what causes the Santa Ana winds, and students develop a model to explain the wind and discuss the anchoring phenomenon question. This phenomenon is interwoven throughout the entire investigation, as the materials include opportunities within each Experience to Revisit the Anchoring Phenomenon and “unpack and make sense of the Anchoring Phenomenon, based on practices and understandings that have been reinforced in the experience.”
- In addition, the materials in Investigation 2: Atomic Structure, Experience 2: Atomic Emission Spectra and the Bohr Model allow students to visualize abstract ideas through the Phet Interactive Simulation: Wave on a String so students can conduct trial and error simulations in order to visualize the relationships between the wavelength, frequency, and energy. The materials also provide students with the opportunity to complete a Claim-Evidence-Reasoning activity, where students “construct explanations supported by models''. Students also have the

opportunity to revisit the Anchoring Phenomenon" and "construct a Bohr model in order to explain how atoms can absorb energy and emit different colors of light." The students can further develop their models by adding "any evidence they have collected in this Experience."

- The materials provide students with an Engineering Design Challenge' in which students complete a descriptive investigation to apply the lesson skills and knowledge to a problem-based scenario. Students apply the engineering design process to develop a prototype that they will test, showcase, and revise as they gather data and feedback. For example, in Investigation 10: Thermochemistry, Experience 1: Energy in Chemical Bonds, students "design and build a meal-heating system that uses an exothermic reaction as the source of heat." After, the students engage in additional instructional approaches by completing research on ration heaters and drawing enthalpy diagrams to reinforce their understanding.

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

- The materials provide instructions to teachers that support flexible grouping. For example, in Investigation 11: The Progress of Chemical Reactions, during the course of learning in Experience 2, the materials direct the teacher to divide students into multiple types of groups.
    - The Experience starts as a whole group with a teacher demonstration, then the materials suggest small groups for the Inquiry Lab using the small group icon, next the materials guide teachers to pair up students for the Virtual lab, and then during the Elaborate activity, the materials direct teachers to "organize the class into groups of three..." before ending the Experience with an individual Evaluate activity in the form of a quiz.
- The materials provide guidance to teachers on when to use specific grouping structures based on the needs of students. For example, in Investigation 14: Nuclear Processes, Experience 1: Radioactivity and Half-Life, the materials include a Classroom Modifications callout in the Explain section. The callout provides teachers with modifications for if time is limited, suggesting "organize the class into two groups." Investigation 6: Chemical Quantities, Experience 2: Molar Relationships also includes the Classroom Modifications callout and states that teachers can modify activities "based on your student's abilities and your schedule." The teacher can make the activity more open-ended by putting students in groups or more guided by completing the activity as a class.

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

- The Texas Experience Chemistry Teacher Guide eText supports multiple types of practices and provides each Experience within an Investigation. For example, in Investigation 8: Stoichiometry, Experience 1: Quantifying Reactants and Products, the materials provide teachers with a variety of activities, from open-ended inquiry labs to independent modeling assignments and collaborative Peer Reviews.
    - The Engage section begins by using a demonstration to "prompt discussion about proportionality in chemical reactions and the conservation of mass." Next, the Explore section includes an Inquiry Lab where students work in groups to gain "insight into how scientists can learn the identity of unknown substances." This section includes an optional Analyze Data assignment that suggests the teacher "pair students and tells them to complete the activity together." The Explain section includes a Modeling activity that allows students to work in pairs or individually. Students work in groups of

three to complete the Peer Review Rubric in the Elaborate section, where they “critique three models." Lastly, students work alone on a quiz in the Evaluate section of the materials.

- The materials provide teacher guidance and structures for the effective implementation of multiple types of practices. For example, the materials include an activity in which the teacher models or demonstrates a new skill or concept and provides opportunities to practice the skill or concept in a variety of ways. In Investigation 10: Thermochemistry, Experience 2: Enthalpies of Formation and Reaction, the materials provide a teacher demonstration titled “How much heat is released when the aluminum oxide is formed?” Students engage with this demonstration by predicting “how much heat is released from the reaction between aluminum and rust.” A classroom discussion on the same topic follows after students view the demonstration, and then students explore the concept in an Inquiry Lab.

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

- The materials include the biographies of diverse individuals who contributed to science in the Additional Program Resources'' tab on the Texas Experience Chemistry Dashboard''. For example, the materials provide biographies on individuals such as Danelle Tanner, a reliability physicist and “founding member of Sandia National Laboratories LGBTQ+ networking group,” as well as Manu Prakash, a bioengineer from India who “holds more than 30 patents, and the number keeps growing.” These are just a few of the 32 scientists featured in the Biographies section that teachers can assign to students.
- The materials represent a diversity of communities in images and information about people and places. For example, the Introduction to Science and Engineering: Science and Society section of the Texas Experience Chemistry Dashboard includes images and passages about a wide variety of scientists, such as Frederick McKinley Jones, “a self-taught mechanic and engineer," and Jeramie Strickland, who “co-developed the nationally recognized Turtle Camp Research and Education in Ecology Program for students, primarily from urban areas and underrepresented groups."
    - The materials provide an Introduction to Science and Engineering: Science and Society worksheet to go with the provided reading where students are asked to “choose at least one scientist from the past followed by at least one current scientist who has built upon that previous work, and show how the research of diverse scientists can impact society and scientific thought.”

Savvas Learning Texas Experience Chemistry

Indicator 7.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials include ELPS Targeted Support in the Experience Handbook section of each Experience within an Investigation. This section of the materials identifies the ELPS as reading, listening, speaking, or writing and includes tiered support for Beginning, Intermediate, Advanced, and Advanced High students.
    - Investigation 9: The Behavior of Gases, Experience 3: Ideal Gases provide linguistic accommodations by first having the teacher pair students together and then "change the experience headings into questions and then read the investigation to find out the answers." Student pairs can then meet and discuss their answers.
    - Further guidance is provided to the teacher in each of the ELPS-defined tiers. For example, Beginning students create a bingo game using words or visuals from the book; intermediate students create two-sided flashcards that include visuals, descriptions, and definitions; advanced students read the headings and use each heading to write a question; and Advanced High students develop questions and answers about the investigation vocabulary words.

Savvas Learning Texas Experience Chemistry

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

- The Texas Experience Chemistry Teacher Guide eText includes a Vocabulary Support section at the beginning of each Investigation that encourages strategic use of students' first language. For example, the Vocabulary Support section in Investigation 4: Chemical Bonding, Encounter states, "Have students compare the vocabulary terms expressed in their native language with terms expressed in English to look for cognates and other means that may help them remember the English definition of the term."
    - This practice is continued throughout the materials in different ways. In Investigation 13: Oxidation-Reduction Reactions, the materials suggest the teacher groups "students of the same home language so that they can collaborate to use an online translator to prepare a shared reference vocabulary list with translations."
- The Texas Experience Chemistry Handbook eText provides students with definitions of highlighted words in both English and Spanish to support the use of students' first language as a means to develop academic vocabulary. When students click on the highlighted word, they can read and listen to the definition of the word and change the language to Spanish to hear it read aloud in either language.

Savvas Learning Texas Experience Chemistry

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

Evidence includes but is not limited to:

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

- The materials provide information to be shared with students and caregivers about the program's design through a Course Letter Home: Chemistry provided in the Additional Program Resources of the Texas Experience Chemistry curriculum. The letter states that the course is “designed around phenomena” and follows a “5E instructional model” that “has 5 phases: Engage, Explore, Explain, Elaborate, and Evaluate.”
- The materials provide a Realize Parent Support section with four components to help parents navigate the program. The four components include a parent letter explaining the adoption of the materials and how to access them, a parent guide that provides detailed instructions and images on how students will use the program, a learner tips for parents poster that provides tips for learning at home, and the Parent’s Corner website that allows parents and caregivers to access helpful videos and information on the program.

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

- The Course Letter Home: Chemistry includes suggestions for caregivers to help students “gain proficiency in chemistry and develop their science and engineering skills.” These suggestions include looking through recently completed lessons and asking questions about the lesson, asking about homework assignments and checking for completion, helping students collect materials and information for school activities and assignments, and advising the use of school or library computers if a computer is not available at home. The letter states, “One of the best

ways for students to reinforce their learning is to have them explain it to someone else in their own words and in their first language."

- The beginning of each Investigation includes an Investigation School to Home Letter that "provides information about the investigation and suggestions for how caregivers can help reinforce student learning and development as well as keep students engaged in learning at home." For example, the Investigation Letter Home Thermochemistry states that "students will practice developing models and explanations as they determine how energy moves between systems and their surroundings." Like the course School to Home Letter, this letter encourages parents to ask questions, look over completed lessons, and collect materials and information for school activities and assignments.
- The materials provide a resource titled Learning at Home: 7 Tips for Parents in the Realize Parent Support section. This resource states the seven tips that can help parents reinforce learning and development: set clear expectations, take a break, plan for attention span, enjoy the sunshine, practice mindfulness, love over lessons, and keep up communications.

Materials include information to guide teacher communications with caregivers.

- The materials include a Teacher-Caregiver Communication Guide with five "strategies to optimize your communication with caregivers."
    - The strategies include sharing the course School to Home Letter at the beginning of the year, using the information in the Teacher Guide to "explain to students and caregivers the design of the program at the beginning of the year, sharing Investigation." School to Home Letters include "information students will learn in each topic and suggest ideas for caregivers to support their students," including learning objectives in each Investigation School to Home Letter, and encouraging students to share what they learn at school with their caregivers.
- The materials include course and Investigation School to Home Letters that the teacher can send to caregivers to "reinforce student learning and development as well as keep students engaged in learning at home."

Savvas Learning Texas Experience Chemistry

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 into 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 aTEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built into 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 into the course materials.

- The “Course Planner and Pacing Guide” provides suggested time allocations for pacing as well as a scope and sequence. The guide suggests the number of class periods needed for each Investigation activity for both a "Fast Track" or "Got More Time" pacing option, as well as notes on which order the topics should be taught in.
- The materials include a TEKS-aligned Scope and Sequence within the "Course Planner and Pacing Guide.” This scope and sequence includes suggested time allocations and includes "the TEKS-aligned scope and sequence for the core activities in each Experience and Investigation." The materials also provide Investigation Overviews that explain the vertical alignment between Chemistry TEKS and prior grade-level Science TEKS within each investigation. For example, in the Investigation 3 Overview, materials provide the teacher with the 6-8 Science TEKS vertically aligned to Chemistry TEKS 5A-5C.

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

- Materials provide Investigation Overviews that explain the alignment between Chemistry TEKS and SEP TEKS. For example, in the Investigation 7 Overview, materials explain that the learning experiences in the investigation activities are aligned to Scientific and Engineering Practice TEKS 1G. The "Scaffolding Scientific and Engineering Practices" feature also provides the teacher with clear guidance for facilitating these practices. For example, in Investigation 7: Chemical

Reactions, Experience 1: Modeling Chemical Reactions, the materials suggest having students "compare the symbolic models used when writing chemical equations, the physical models used to represent collision theory, and the mathematical and graphical models used to represent thermodynamic changes that occur during the reactions..."

- For example, in “Getting Started with Texas Experience Chemistry,” under “correlations,” there are TEKS correlations that include SEPs connections and cross-content standards correlations. A list of where you can find each TEKS is provided and references several areas, such as the experience handbook, the teacher guide, and each investigation.
- The Teacher Guide provides strategies to guide students as they complete activities. For example, Investigation 7: Chemical Reactions, Experience 3: Reactions in Aqueous Solutions includes the Engineering Design Challenge "Water Purification." The materials indicate that in Step 2, "Students may have difficulty determining the criteria and constraints. Remind them that criteria are..." and that in Step 7, teachers "may wish to provide a list of costs for the substances used in the water purification process to help students evaluate their solution."
    - A Teacher Support Document is also provided, in addition to the information in the Teacher Guide, to facilitate student-made connections. The document includes sample student responses to guide the teacher throughout the Engineering Design Challenge.

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

- Materials provide the teacher with guidance for providing students with review and practice of knowledge and skills that support mastery and retention. For example, the "Experience Handbook" includes key questions for each lesson. In the various lessons that incorporate TEKS Chemistry 1.G, the materials direct students to review their work on previously completed student tasks and conduct research to increase mastery and retention.
- Materials include spiraling of concepts learned within an investigation and throughout the year. For example:
    - The spiraling within an investigation can be found in each of the experience overviews located in the “Texas Experience Teacher Guide eText.” The materials within the student textbook on TEKS 6C also show the students their prior knowledge by listing the standards with which they should be familiar.
    - The spiraling throughout the year can be found in the table of contents, the "TEKS Chemistry Correlation" document, the teacher guide, and each Investigation Overview. For instance, the Investigation 6 preview states, "Students apply kinetic molecular theory (KMT) to explain gas behavior. Note that KMT is covered here as part of the spiraling of the concept; it was introduced in Investigation 5. It will be reinforced here and then covered in greater detail in Investigation 9."
- Materials provide “Anchoring Phenomena” in each Experience that provides opportunities for spiraling concepts in the context of various real-world phenomena. For example, TEKS 9A (interpret, write, and balance chemical equations) is incorporated into the Anchoring Phenomena for Investigations 1, 7, 8, 11, 12, and 13, in the context of forest fires. The materials also provide Engage, Explore, Explain, Elaborate, and Evaluate activities that revisit the anchoring phenomenon.

Savvas Learning Texas Experience Chemistry

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

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

Meets| Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials provide teachers with implementation support by offering guidance documents to support the use of research-based instructional materials. For instance, teachers have access to editable lesson plans that "summarize the content needed for the experience." This editable investigation planner gives recommended lessons to support teachers and includes additional practice in the investigation evaluations.
- The materials direct teachers to text passages through the Explain subsection within an Experience. One example found in Experience 1: Modeling Atoms directs the students to “read about an introduction to energy” in their experience handbook.
- The materials use technology to guide the teacher through animations and PhET Interactive Simulations within the Explain and Explore subdivisions within an Experience. Print and digital materials are provided for both the teacher and the students.
- The materials provide suggestions for supporting all learners with differentiated instruction. For example, in the “Teacher Experience Chemistry Teacher Guide eText,” each Investigation includes a section on vocabulary that supports emergent bilinguals as well as ELPS targeted

support. Each Experience also allows the teacher to modify certain components of the lesson with the Classroom Modifications section. This section includes suggestions for more open-ended practice opportunities as well as more guided practice opportunities.

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

- Teachers can access a pdf of the cross-content standards, located in the Cross Content Standards Correlations under the Getting Started with Texas Experience Chemistry section. The pdf includes a list of Algebra 1 and English 1 standards and the correlation to where you can find the science lessons listed that support those standards.
- Materials provide teachers with standards correlated with other content standards, like Science and Engineering Practices, Texas Essential Knowledge and Skills, ELPS, and previous grade-level TEKS. For instance, in the Experience Overview, materials provide teachers with TEKS progression, correlation to SEPs, ELPS, and College and Career Readiness Standards.
- In the investigation planner, there are several tabs present for each experience. Each tab includes the TEKS that are aligned with each experience. For example, in Investigation 1: “Matter, Energy, and Change,” Experience 1 is aligned with TEKS 13A./1A/Reading 4.F.

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

- A comprehensive list of equipment and supplies is found in the Master Materials List for Lab Activities under the “Additional Program Resources” section.
- Under the "hands-on labs" tab, the materials contain a downloadable Excel spreadsheet that lists the introduction, liquids, solids, equipment, and household items by activities, quantities, and version of the lab. For example, the spreadsheet states 110 mL of Acetic acid (vinegar) is needed in the Abrasive Compounds activity and is included in a Flinn Scientific Kit.
- In the laboratory experiences, there is a comprehensive list of materials needed. For example, in the lab titled "Thermal Energy and Heat Transfer," there is a section that provides a comprehensive list of materials needed for the laboratory activity. The materials are presented as materials per group needed.

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

- Materials include Flinn Advanced Inquiry Labs with safety practices, materials, and equipment. For example, the "Evaluate Atomic Spectra" lab has a safety section that describes the appropriate behaviors.
- Lab safety videos guide grade-appropriate use of safety equipment during labs. For instance, the "Flinn Lab Safety Video: Introduction to Laboratory Safety '' guides the use of personal protective equipment in laboratory settings through an animated multimedia presentation.
- Teachers can access "lab safety" under the program overview in“Getting Started with Texas Experience.” The materials guide lab safety practices through a three-page document on safety in chemistry investigations.
- The laboratory experiences provide a section that delineates safety practices for the experience. For example, in the lab titled "Thermal Energy and Heat Transfer," the safety practices are found underneath the materials needed.

Savvas Learning Texas Experience Chemistry

Indicator 8.3

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- The materials provide teachers with a "Course Planner and Pacing Guide" that suggests time allocations for the core activities in each Experience and Investigation. The guidance documents provide time suggestions for both 45-minute classes and block schedules.
- The Teacher Investigation Planner guides teachers through the required amount of time for each activity. For example, in Investigation 1: Matter, Energy, and Change the experience provides the number of minutes required for each activity. Experience 1: Introduction to Energy suggests 10 minutes for the Everyday Phenomenon teacher demo, 40 minutes for the Inquiry lab, and continues through each activity included.
- The materials provide teachers with an Investigation Planner that provides pacing suggestions for each Experience. The Planner guides two tracks: a “Fast Track” and a “Got More Time?” track.

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

- The Course Planner and Pacing Guide provides teachers with an order of Investigations that follows a developmental progression of Chemistry concepts. For example, in the Course Planner, students will begin with the Matter, Energy, and Change Investigation, then move into the Atomic Structure Investigation.
- Each investigation is designed in a sequential manner that builds on the content. With the inclusion of a “Fast Track” and a “Got More Time” guide in the Investigation Planner, teachers

can implement materials from core areas of content, as well as extra practice, without disrupting the sequence of content.

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

- The Course Planner and Pacing Guide provides teachers with a suggested pacing guide for two pacing tracks. The “Fast Track” includes pacing for investigations that amounts to 137 45-minute periods. The “Got More Time?” track includes pacing for Investigations that amounts to 230 45-minute periods. Each track is flexible and allows students to complete the course within the school year.
- Materials allow teachers to choose a pacing track that fits their schedule. Teachers are guided to which assets within an Experience are core assets by selecting activities “indicated with check marks.'' Additional activities are indicated with blue plus signs and can be added in and used with the “Got More Time?” pacing track, which “allows students to personalize their learning by choosing from the activities with the plus sign.”

Savvas Learning Texas Experience Chemistry

Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The materials include an appropriate amount of white space and a design that supports and does not distract from student learning. For example:
    - The materials provide space between each question on the Flinn Open-Ended Inquiry Lab: Collision Theory that allows students to answer the questions during the lab. In addition, the materials allow for only six questions per page to allow for plenty of space for students to read and write without distractions.
    - The Texas Experience Chemistry Handbook materials include an adequate amount of whitespace. Investigation 5: Physical Properties of Substances, Experience 1: States of Matter discusses the Kinetic Molecular Theory and a Model for Gases by including one paragraph of text explaining the theory, a visual representation of gases in the kinetic molecular theory, and one paragraphing detailing an opportunity for students to draw their own models of gas particles.

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

- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example:
    - Investigation 2: Atomic Structure, Experience 4: Electrons in Atoms of the Texas Experience Chemistry Handbook includes a table that shows the configuration of electrons in various visual representations to help the learner fully understand how electron configurations can be expressed.

- Investigation 2: Atomic Structure, Experience 1: Modeling Atoms includes visual representations of Dalton's Postulates, Thomson's Cathode Ray Tube Experiment as well as his model, Rutherford's Gold Foil Experiment, and a model of his nuclear atom.
- The materials include Anchoring Phenomenon activities videos at the beginning of each Investigation. These videos include age-appropriate graphics and visuals that support student interaction with real-world phenomena. The video for Investigation 1: Matter, Energy and Change includes a Watching Wildfires video with age-appropriate images of wildfires to connect back to the Anchoring Phenomenon "Why are wildfires so difficult to extinguish."

Materials include digital components that are free of technical errors.

- The materials included in the digital components are free of technical errors.
  - The materials are free of grammatical and spelling errors. For example, Investigation 7: Chemical Reactions in the Texas Experience Chemistry Handbook states, "When fuel and oxygen chemically react in a rocket engine, a massive amount of energy is released. This energy release propels the rocket and its spacecraft into the sky."
  - The materials are free of inaccurate content materials and information. For example, the Inquiry lab expected outcome in Investigation 10: Thermochemistry, Experience 1: Energy in Chemical Bonds within the Texas Experience Chemistry Teacher Guide eText states, "Based on temperature measurement results, students determine that dissolution of NaOH and $CaCl_2$ releases heat energy, whereas the dissolution of NaCl and NH_4Cl absorbs heat from the surrounding environment."
  - The materials are free of wrong answer sheets to problems. For example, the Inquiry Lab in Investigation 12: Acid-Base Chemistry, Experience 2: Acid-Base Reactions asks the question, "Obtain the actual concentration of your unknown from your teacher. Was your calculated concentration accurate? If not, provide experimental factors that could improve your results." and provides the answer, "Sample answer: Our unknown concentration was extremely accurate. The average was almost exactly the same as our given concentration."

Savvas Learning Texas Experience Chemistry

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

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

Materials integrate digital technology and tools that support student learning and engagement. Materials integrate digital technology in ways that support student engagement with science and engineering practices 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 materials integrate digital technology and tools that support student learning and engagement. For example:
    - The Texas Experience Chemistry Handbook eText includes embedded tools, such as note-taking, text-to-speech, dictionary, glossary, annotations, highlighting, and editable forms. In Investigation 12: Acid-Base Chemistry, the digital materials allow students to select text and highlight, circle, underline, annotate, and translate text. A notebook is integrated directly into the materials, allowing students to take notes and answer questions such as “How might algae bloom affect the clarity of water and thus affect the health of coral ecosystems?”
    - Materials provide teacher guidance for using simulations, interactives, and related activities to support student learning. Investigation 2: Atomic Structure, Experience 1: Modeling Atoms includes an animation Explain activity titled A Quick Look at the Parts of an Atom and states, “This animation uses models to describe the structure of atoms, including the locations of protons and neutrons in the nucleus and electrons in the electron cloud.” The teacher can select from two strategies as they use the animation (i.e., pausing the animation and asking for volunteers to summarize the critical information or encouraging students to use what they learned to refine their isotope models created in an earlier activity).

- Materials integrate Virtual Nerd videos that support student learning. The Virtual Nerd: How Do You Use Dimensional Analysis to Convert Units on Both Parts of a Rate? helps students learn “how to use the information given in a word problem to create a rate. Then find and use conversion factors to convert the rate to different units.” This video supports the activities in Investigation 5: Physical Properties of Matter, Experience 1: States of Matter.

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

- The materials integrate digital technology in ways that support student engagement with the science and engineering practices and course-specific content.
  - Investigation 1: Matter, Energy, and Change, Experience 3: Conservation of Matter includes the PhET simulation Build an Atom, which allows the learner to use a digital tool to apply various SEPs to help support student engagement. Students use the simulation to “explore how an atom’s basic properties relate to its number of protons, neutrons, and electrons. Students will also develop a visual model of any atom or ion by showing its structure and the placement of the protons, neutrons, and electrons.”
  - Each Investigation includes a Virtual Lab activity. Investigation 5: Physical Properties of Substances, Experience 1: States of Matter includes the Virtual lab States of Matter, where “students carry out investigations in a virtual heating chamber, noting and explaining how changes at the molecular level result in changes in structure at the macroscopic level.”
  - Materials include laboratory demonstration videos supporting student engagement with science and engineering practices. For example, the materials provide a Flinn Lab Demo Video: Intermolecular Forces for Investigation 4: Chemical Bonding, Experience 4: Intermolecular Attractions. The video provides students with demonstrations of lab safety, lab tools, and appropriate usage, as well as asking questions, making hypotheses, and communicating ideas.

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

- The materials integrate digital technology that provides opportunities for teachers and/or students to collaborate. For example:
  - Materials integrate digital technology that supports student-to-student collaboration. Investigation 5: Physical Properties of Substances, Experience 4: Comparing Metals and Nonmetals includes an Explain activity in which the teacher instructions state, "Pair students to watch the animation. Tell them to pause the animation to take notes and to record any questions it raises for them. To foster in-class discussion, when pairs finish watching, ask students to share their questions and discuss the answers. Call on other students in the class to contribute explanations."
  - Materials integrate digital technology that supports teacher-to-student collaboration. The materials include editable documents in the form of Google documents. Google Docs allow the teacher to comment via the comment feature and provide feedback. For example, in Investigation 9: The Behavior of Gases, Experience 3: Ideal Gases, students use a Google Doc to complete the Inquiry Lab The Ideal Gas Law, which can be commented on by both teachers and students.

- The Getting Started with Texas Experience Chemistry section of the materials includes training for integrating Realize with Google Classroom, Canvas, and other Learning Management Systems and sharing links in popular applications such as Seesaw, Microsoft Teams, and Calendar.

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

- The digital materials are accessible and compatible with multiple operating systems and devices. For example:
  - The materials are accessible and compatible with Chromebooks, iPads, PCs, Apple computers, and smartphones. The help.learningservicetechnology.com website linked in the Realize Parent Guide provides a detailed description of system requirements. The website states, “The Realize and Realize Reader system requirements include the latest versions of Google™ Chrome™, Microsoft Edge®, Mozilla® Firefox®, and Apple® Safari®. By designating officially-supported operating systems and browsers, Savvas is able to ensure an optimal user experience; however, Realize and Realize Reader will operate in other, untested combinations of operating systems and browsers.”
  - The materials are accessible online through any device with internet access. The help.learningservicetechnology.com website states, “A bandwidth speed of 1 Mbps per user is recommended for optimal performance on all Realize and Realize Reader apps.”
  - The materials are downloadable and accessible without access to the internet. The Realize Parent Guide includes a section titled Offline Access that states, “Savvas Realize Reader™ provides online and offline access to the interactive Student Edition for most Savvas programs. If your title offers offline access, a symbol will be located below the cover.”

Savvas Learning Texas Experience Chemistry

Indicator 9.3

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The digital technology and online components are developmentally appropriate for the course and align with the course scope and approach to science knowledge and skills progression. For example:
    - The PhET simulations linked to Explore activities are appropriate for high school chemistry students and are aligned with the TEKS. For example, the Gas Properties PhET simulation Explore activity in Investigation 9: The Behavior of Gases, Experience 3 Ideal Gases allows students to manipulate gas behavior by changing volume, pressure, and temperature variables and seeing a resultant simulation of gas molecules behavior. This is aligned with Chemistry TEKS 10.A and 10.B.
    - The content within the Texas Experience Chemistry Handbook eText is designed in a manner that is both visually and verbally grade-level appropriate. Investigation 10 Thermochemistry, Experience 1: Energy in Chemical Bonds includes information on collision theory and activated complex, followed by diagrams depicting successful and unsuccessful collisions. After reading the text and observing the diagrams, students complete SEP Use a Model, an activity where they “relate electron sharing in an activated complex to the passing of a baton.”
    - The materials include animations that make abstract ideas more complete. For example, Investigation 3: The Periodic Table, Experience 1: The Periodic Table an Overview includes the animation The Design of the Periodic Table that “provides an explanation

for the arrangement of elements in the periodic table." As students move through the experiences, the animations detail more complex ideas. Experience 3: Periodic Trends includes an animation that "describes the factors within an atom that affect ionization energy, electronegativity, and electron affinity and explains how these factors give rise to other periodic trends."

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

- The materials provide teacher guidance for the use of embedded technology to support and enhance student learning. For example:
  - Investigation 2: Atomic Structure, Experience 3: Modern Atomic Theory provides students with the opportunity to complete a digital activity titled "Interactivity: The Quantum Mechanical Model and Atomic Orbitals." The materials guide the teacher, stating, "As students complete this activity of locating electrons in the electron cloud, ensure they understand that all of the orbitals actually overlap somewhat."
  - The Getting Started with Texas Experience Chemistry page lays out various instructional guides on the overall layout of the program and how to use the various aspects of the program. This page also includes various online training links to implement the program successfully. The Realize User Guide and Training Info tab provides teachers with an overview of how to customize the content (such as interactive pdfs) to fit classroom needs.
  - Materials include a Support for Collaborative Tools in Realize document to provide teachers with guidance on how to use the collaboration features in Savvas Realize. The document provides guidance for collaboration in assignments, discussion prompts and managing discussion boards, and how to leave comments via the PDF toolkit.

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

- The materials include resources for parents and caregivers on how to support student engagement with digital technology and online components. For example:
  - The Realize Parent Guide shows the platform's navigation, viewing and accessing assignments, completing and submitting assignments, grades and teacher feedback, browsing program content, and offline access so parents and caregivers can help students use the program to support engagement.
  - The Realize Learner Tips infographic provides parents with Learning at Home: 7 Tips for Parents in order to support student engagement. Tips include "Keep Up Communication. Teachers and parents are important partners in distance learning. If there are any concerns or confusion, let your child's teacher know ASAP!" and "Take a Break. Students need breaks during the day. Do the same between assignments when learning at home. It increases motivation and work quality!"
  - Each Investigation includes an Investigation Letter Home that details the content of the Investigation, outlines the Investigation phenomena, and provides suggestions for parents to help students "gain proficiency in chemistry and develop their science and engineering skills." In the Investigation Letter Home The Behavior of Gases, the materials suggest, "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. “