Summit K12 Dynamic Science Grade 8

Summit K12 Dynamic Science Grade 8 Executive Summary

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

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

Section 2. Instructional Anchor

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

Section 3. Knowledge Coherence

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

Section 4. Productive Struggle

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

Section 5. Evidence-Based Reasoning and Communicating

- The materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.
- The materials provide some 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 some guidance that explains how to analyze and respond to data from assessment tools.

- The assessments are somewhat clear and easy to understand.

Section 7. Supports for All Learners

- The materials provide guidance on fostering connections between home and school.
- The materials include listening, reading, writing, and speaking supports to help Emergent Bilinguals meet grade-level science content expectations.
- The materials include some 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 some practice and review opportunities that support instruction.
- The materials include some 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 somewhat designed to engage and support student learning with the integration of digital technology.
- The digital technology or online components are developmentally and grade-level appropriate and provide support for learning.

Section 10. Additional Information

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

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Indicator 2.1

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

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

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.

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

Evidence includes but is not limited to:

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

- Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS. For example, there is a section dedicated to science and engineering practices. Skills companions and vocabulary practice are available for every SEP, including, but not limited to, conducting investigation and designing solutions, developing and using models, and investigating STEAM careers. Materials prompt students to engage in hands-on activities that provide students with opportunities to practice and demonstrate scientific and engineering practices. For example, a concept mastery section allows teachers to assign students to assess their concept attainment. Students demonstrate knowledge with two formative assessments on individual standards, such as 8.7A, Newton's Second Law of Motion, and 8.12C, Impact of

Biodiversity on Stability of Ecosystems. Students also assess the related vocabulary within a concept.

- Materials include opportunities for students to design and conduct grade-appropriate experiments, collect and analyze data, and develop and test hypotheses. In an 8.6D Properties of Acids and Bases lesson, students investigate the properties of acids and bases by performing various tests to identify all properties. The SEPs applied in this investigation are: 8.1A, Ask questions and define problems based on observations or information from text, phenomena, models, or investigations; 8.1C, Use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency-approved safety standards; 8.1D, Use appropriate tools such as graduated cylinders, laboratory ware, pH indicators, Petri dishes, and lab notebooks or journals; 8.1E, Collect quantitative data using the International System of Units (SI) and qualitative data as evidence; and 8.3A, Develop explanations and propose solutions supported by data and models consistent with scientific ideas, principles, and theories. Within one lesson, students are provided multiple opportunities to develop, master, and demonstrate mastery of SEPs. For example, the Lesson Guide for 8.10C, Tropical Cyclones, indicates 8.3A is utilized. There are four activities: the Engage, How do Hurricanes Form?, Hurricane in a Bowl, and a Mind Map, where students will develop explanations supported by data and models and consistent with scientific ideas in 8.3B, Communicate explanations and solutions individually and collaboratively in various settings and formats.

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

- Materials provide multiple opportunities to connect between and within overarching concepts using recurring themes. Students play a game in which they simulate how disruptions in an ecosystem can disrupt the flow of energy in a food web. The Food Web Chaos Game incorporates Scientific and Engineering Practices and Recurring Themes. For example, materials provide teachers with an at-a-glance view of the recurring themes on the 8th Grade TEKS-SEPs-RTCs Crosswalk, located on the Dynamic Science Teacher's Guide page. Teachers can see the placements of RTC 8.5A-G and their corresponding lessons. Students receive multiple opportunities to make connections within one lesson using the same RTC, such as the 8.10B Global Patterns of Air and Weather 8.5A Lesson Guide. In lesson 8.12B, Ecological Succession, students choose a specific biome and create a comic strip or flipbook that illustrates primary succession, secondary succession, or both in that area; this incorporates the RTC 8.5A to identify and apply patterns to understand and connect scientific phenomena and 8.5B, Identify and investigate cause-and-effect relationships, to explain scientific phenomena or analyze problems. There are six activities where students will identify and apply patterns to understand phenomena: What is Weather, What is the Jet Stream, How to Read a Weather Map Article with notes, Investigation Surface Weather Maps, Create a Weather Map, and Research.

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

- Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level outlined in the TEKS. Each Lesson Guide begins with an Engage and Establish Relevance section introducing the topic. Next, teachers use the Teach and Discuss team to introduce fundamental concepts and help students build understanding

through hands-on experiences, literacy activities, discussions, and other instructional tools. Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level outlined in the TEKS. For example, each content TEK has a 5E lesson model planned out. Lesson Guides are designed to enable teachers to scaffold learning increasingly more complexly, leading to deeper understanding. Each Lesson Guide begins with an Engage and Establish Relevance section introducing the topic. Next, teachers use the Teach and Discuss section to introduce fundamental concepts and help students build understanding through hands-on experiences, literacy activities, discussions, and other instructional tools. Finally, teachers use the Apply and Extend activities to allow students to synthesize and extend their understanding of the concepts. The 8.6C Behavior of Water Lesson Guide provides one example of the intentional sequencing of materials.

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

- Summit K12 design lessons with engaging activities that allow students to ask questions and plan and conduct investigations. These investigations, whether using physical classroom tools or digital simulations, are included throughout the course. Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions, plan and conduct classroom investigations, and engage in problem-solving to make connections across disciplines and develop an understanding of science concepts. For example, materials provide the teacher with a set of possible student questions, including guiding questions the teacher can ask to help students connect prior knowledge of the makeup of our universe and solar system. In lesson 8.9A, Stars: Life Cycle and Classification, the teacher displays images of the universe and a model of our solar system. The teacher asks questions to engage students: “What makes up the universe? What makes up our solar system? What is at the center of our solar system? What are some physical properties of our Sun?”
- Materials give students opportunities to plan and conduct classroom and field investigations. Students use scientific practices to plan and conduct simple descriptive investigations. For example, in lesson 8.6E, Law of Conservation of Mass, students investigate how mass conserves in chemical reactions. Students explore what happens to the mass of a glow stick before and after its activation.

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Indicator 2.2

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- The materials embed phenomena to support students in developing knowledge that drives student learning across grade-level content. For example, in lesson 8.6C, Behavior of Water, students describe the properties of cohesion, adhesion, and surface tension in water and relate them to observable phenomena such as the formation of droplets, transport in plants, and insects walking on water. Students research to discover water's properties in unique phenomena. They will produce a product designed to share their discoveries. For example, in Lesson 8.9B, Categorization of Galaxies, students research the technology scientists use to view galaxies, including the Hubble and James Webb telescopes, and create a slideshow with their findings. They then present their slideshows to the class. Students view select videos from NASA's James Webb Space Telescope video playlists to learn more about recent technological advancements in capturing images from deep space. This activity correlates with SEP 8.1A: Ask questions and define problems based on observations and phenomena and RTC 8.5A: Identify and apply patterns to understand and connect scientific phenomena or to design solutions.
- Materials embed problem-solving through applying science and engineering practices, recurring themes and concepts, and grade-level TEKS. For example, the 8.7AA, Taxonomy, SEP's 8.1B, C, D,

E, F, and 8.2C are utilized in the Lesson Guide. Additionally, the RTC 8.5B is used. Lesson Guides include phenomena to kick-start a lesson and engage students in asking questions and seeking evidence-based answers through investigations, research, and scientific argumentation. Lesson Guide TEKS 8.6A, Law of Conservation of Mass, includes examples of embedded phenomena and engineering challenges used to engage students in scientific reasoning, authentic application and performance of SEPs, Recurring Themes and Concepts, and TEKS content. In the Engage section of this lesson, students explore what happens to the mass of a glow stick before and after its activation.

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

- Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems, ensuring that connections are made to previous science TEKS. For example, in reporting category 1, Matter and Energy, additional lessons are provided to enhance student knowledge. In Lesson 8.6B, Atoms in Chemical Reactions, students use the periodic table to identify the atoms involved in chemical reactions. Along with this is a 7th-grade Lesson 7.6B, Chemical Formulas, which ties in prior knowledge linked to using the periodic table.
- In the Lesson Guide for 8.13C, Variations and Adaptations, the teacher is provided three lessons on concepts from 6th and 7th grade (6.13Cand 7.13C, D) to help activate prior knowledge before beginning the 8th-grade concepts. Students then build on this knowledge by completing activities to help them understand how variations within populations lead to better adaptations. The materials allow different entry points into the learning of the phenomena. For example, in 8.6C, Behavior of Water, students conduct, read, and annotate a text on the water in the human body, complete multiple labs and investigations, and complete research. Students access many opportunities to interact with the content and concepts.

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

- Materials clearly outline the scientific concepts and goals behind each phenomenon and engineering problem for the teacher. For example, in Lesson 8.13B, Function of Genes, students describe the function of genes within chromosomes in determining inherited traits of offspring. Students engage in a lab where they create monster offspring based on the genetic characteristics of parent monsters. This activity corresponds with SEP 8.1B: Use scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems and RTC 8.5A: Identify and apply patterns to understand and connect scientific phenomena or develop solutions.
- The Teach and Discuss section of the Lesson Guide for 8.7A Newton's Second Law of Motion thoroughly describes each science concept that the students need to know. It includes supporting information from primary grades and definitions for vocabulary words. Materials clearly outline the goals behind each phenomenon or engineering problem for the teacher. In the Lesson Guides for every TEKS, there are gray boxes containing the plans for each lab, investigation, or engineering problem containing the goals for that lab. For example, the 8.6A, Classification of Matter, Lesson Guide has a gray box for the Compounds, Mixtures, and Solutions inquiry. This gray box indicates that the goal is to be able to explain how matter is classified and to describe the similarities and differences between compounds, mixtures, and

solutions. The teacher notes provide detailed background information, a set-up guide, and answer keys to clearly outline the goals.

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Indicator 3.1

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- The materials connect new learning to previous and future learning within and across grade levels. For example, in the Teacher's Guide, reporting Category 1, Lesson 8.6B, Atoms in Chemical Reactions, students use the periodic table to identify the atoms involved in chemical reactions. For example, in Lesson 8.7B, Simultaneous Action of Newton's Three Laws of Motion, connections are made with the current concepts where students investigate and describe how Newton's three laws of motion act simultaneously within a system to previous learning in seventh grade: students analyze the effect of balanced and unbalanced forces on the state of motion of an object using Newton's first law of motion.
- The teacher resources for Category 2, Force, Motion, and Energy, provide lessons on fifth, sixth, and seventh-grade TEKS that support the eighth-grade TEKS. They are listed directly under the eighth grade TEKS and have a unique colored staircase icon to indicate they will support current grade-level TEKS.
- Several connections to future learning are also listed: IPC 5. B: Students analyze data to explain the relationship between mass and acceleration in terms of the net force on an object in one dimension. Physics 5.E.: Students explain and apply the concepts of equilibrium and inertia represented by Newton's first law of motion. Physics 5. F: Students calculate the effect of forces

on objects. Physics 5. G: Students illustrate and analyze the simultaneous forces between two objects.

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

- Materials are intentionally sequenced to scaffold learning, allowing for deeper conceptual understanding. For example, materials ensure students experience a phenomenon or problem before utilizing models as a tool for reasoning. Materials give students opportunities to use models to depict relationships and form explanations. Each Lesson Guide starts with an Engage and Establish Relevance section where students first experience phenomena related to the topic in some way and begin building their knowledge base. Then, the lesson progresses to Teach and Discuss, where vocabulary and essential concepts are learned. Labs and investigations also happen during this section. The last section is Apply and Extend, where students create models, design their experiments, research further, and complete engineering challenges. For example, in the Lesson Guide for 8.6C, students start with a Wet Rag Demonstration in the Engage, move to a series of investigations on several properties of water in the Teach and Discuss section, and finalize their learning with inquiry lab called Exploring Water's Behavior where they design their experiment in the Apply and Extend section.
- Materials are intentionally sequenced to scaffold learning, allowing for deeper conceptual understanding. Before participating in labs or investigations, students gather basic information, including necessary vocabulary. For example, in Lesson 8.13B, Function of Genes, students create a graphic organizer over the basic functions of genes working through a series of activities on dominant and recessive traits and DNA.

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

- The materials present grade-specific core concepts. Within each lesson, the core concepts broaden into several key concepts, bolded for ease of view. For example, in Lesson 8.8B, Applications of Electromagnetic Waves, students explain the use of electromagnetic waves in applications such as radiation therapy, wireless technologies, fiber optics, microwaves, ultraviolet sterilization, astronomical observations, and X-rays. This lesson includes 11 bolded key concepts, expanded explanations, and graphics to help visualize the core concepts. This section has a slide deck to use with students, including diagrams of core concepts and vocabulary students need to understand and activities to help students master the concepts. This information aligns with the wording of the TEKS. For example, 8.6A says students will explain by modeling how matter classify as elements, compounds, homogenous mixtures, or heterogeneous mixtures. The Lesson Guide for 8.6A Key Concepts section has definitions and diagrams of those specific terms and concepts.
- The materials present recurring themes and concepts. For example, the materials include a section in the Teacher’s Guide to assist with understanding recurring themes and concepts (RTC). The slideshow defines each RTC and gives relevant examples of each. The teacher can view which lessons correspond with a specific RTC by viewing the eighth-grade TEKS-SEPs-RTCs Crosswalk in the Teacher’s Guide. For example, RTC 8.5A identifies and applies patterns to understand and connect scientific phenomena or to design solutions, as found in Lessons 8.6D, 8.9BC, 8.10ABC, 8.11A, 8.12B, and 8.13B.

- The materials present science and engineering practices (SEP). For example, the materials include a Scientific and Engineering Practices section where teachers can find and gain knowledge on each specific goal. For example, for SEP 8.4A Research and Innovation, teachers can view a skills companion slideshow that explains “Science is Ongoing, Science and Society Impact Each Other, Who Makes Up a Scientific Community, Why is Diversity Important in the Scientific Community, Scientists Who Changed the World, Research Methodology and Ethical Standards in Science and Science Changes Over Time.” The course's Scientific and Engineering Practices section includes Skills Companions that teachers can use to provide instruction on these process standards. Each presentation design builds to support the SEP and RTC TEKS, leading to more fulfilling and in-depth conversations about connections within core concepts instruction. For example, the skills companion for Use Evidence to Communicate Findings covers SEPs 6.3A, 6.3B, and 6.3 C.

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

- Mastery requirements of the materials are within the boundaries of the main concepts of the grade level. Each Lesson Guide states the grade level TEKS at the top, which provides the core vocabulary, study guides, TEKS videos, and formative assessments. The Teach and Discuss section provides the vertical alignment below and above, providing teachers with the boundaries of their topics. The materials include specific learning targets for each grade level. For example, the materials provide teachers with a scope and sequence which they can use to see the grade-specific standards of eighth-grade science and ensure the materials include all standards. The scope and sequence list all TEKS in the order of recommended pacing.
- The materials clearly define the boundaries of content that students must master for the grade level. For example, the materials include a concept mastery section in the Teaching and Learning section of the Teacher’s Guide. The guide states, “The Concept Mastery Approach is a rigorous process teachers follow to help each student master both the concepts and the academic vocabulary. Vertically-aligned scaffolds are built into the Teacher’s Guide and student tables to differentiate and accelerate student learning and mastery. All content is organized by category and TEKS, making it easy to follow any scope and sequence.” Students must attain specific percentage points on assessments and can be assigned scaffolded lessons to fill in any knowledge gaps.

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Indicator 3.2

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

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

Meets | Score 6/6

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

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

Evidence includes but is not limited to:

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

- Materials support teachers in understanding the horizontal and vertical alignment, guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices. Teachers may reference supports in the Teacher's Guide page's Scope and Sequence/Pacing Guides section, which explains the design and purpose of the scope and sequence. The materials implement designs with an optional year-long scope and sequence that ensures all TEKS are covered within one school year. Scientific and Engineering Practices (SEP) and Recurring Themes and Concepts (RTC) standards are integrated into lessons and taught within science content standards. The materials include guiding documents that explain how content and concepts increase in depth and complexity across lessons and units within the grade level. A phenomenon sense-making guide is included for each TEK to help students gain an understanding of different phenomena. TEKS. The materials are implemented as stand-alone units. The Pacing Materials section states that the pacing guide "serves as an optional resource that teachers and administrators may use in addition to or in support of any district-provided pacing guidelines."
- The scope and sequence outlines the units of study and the order in which teachers can teach knowledge and skills. Grade 8 is split into ten units, such as Classification and Conservation of

Matter, Newton's Laws, Weather and Climate, Cell Functions, and STAAR Review. The units further break down into TEKS-based lessons. For example, Unit 8: Cell Functions contains two lessons, 8.13A: Functions of Organelles and 8.13B: Function of Genes. Each lesson within the materials includes a vertical alignment table, connections to recurring themes and concepts, and scientific and engineering practices. For example, in Lesson 8.9C, Theories of the Origin of the Universe, teachers can see the related knowledge from seventh grade. Students described how gravity governs motion within Earth's solar system (7.9B). Teachers can also preview the next level of knowledge gained in future grade levels. In Astronomy, students will describe the current scientific understanding of the evolution of the universe, including estimates for the age of the universe (A.15D). Each component of the lesson lists the coding for SEPs and RTCs; however, the full wording of each standard is at the end of the lesson. The related SEPs in this lesson include 8.1G develops and uses models to represent phenomena, systems, processes, or solutions to engineering problems, and 8.1H distinguishes between scientific hypotheses, theories, and laws. The RTCs in this lesson are 8.5A, identify and apply patterns to understand and connect scientific phenomena or to design solutions, and 8.5D, examine and model the parts of a system and their interdependence in its function.

- Materials provide a vertical alignment to support teachers. In the Teach and Discuss section of each learning guide is a pair of boxes showing the vertical alignment to TEKS below and above the current grade level. For example, in the 8.8A Characteristics of Waves Lesson Guide, the vertical alignment shows that one TEKS for sixth grade, 6.8C, is aligned with 6.10C and concepts from IPC and Physics courses in high school.

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

- Materials contain explanations and examples of science concepts, including grade-level misconceptions, to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS. For example, in Lesson 8.6B, Atoms in Chemical Reactions, teachers can view bolded science concepts with expanded explanations, such as "A chemical formula is used to represent the substances in a chemical reaction, using the chemical symbols of the atoms involved, as well as subscripts, parentheses, and coefficients, where relevant. Every pure substance has its unique chemical formula." Teachers can also see misconceptions, such as students misidentifying elements with an uppercase and lowercase symbol as separate elements. For example, Cl may be mistaken for two separate elements (carbon and iodine) rather than chlorine. Each Lesson Guide contains a section called Teach and Discuss. This section gives explanations and examples of the science concepts taught in that unit. For example, the 8.6E Law of Conservation of Mass Lesson Guide includes a Teach and Discuss section. It explains key concepts such as a chemical equation's function and a chemical equation diagram with labeled reactants, products, coefficients, and subscripts.
- Materials contain misconceptions of science concepts to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS. For example, the Lesson Guide for Variations and Adaptations (8.13C) has an Observing Traits in a Marine Environment: Science Journal activity in the engage section. It includes a sample journal entry. The key concepts section's Lesson Guide for Biotic and Abiotic Factors (8.12A) identifies a misconception: "Misconception: Most students understand that animals compete for food and mates, but many do not know that plants do the same thing. Plants in the

rainforest compete for sunlight. Trees try to outgrow each other so they do not end up in another tree's shade. Certain plants, such as spotted knapweed, even leak toxins from their roots to kill other plants and reduce competition for resources."

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

- Materials explain the intent and purpose of the instructional design of the program. Located within the Teacher's Guide section are resources to learn more about the intentional design of the materials. For example, in the Course, Design section is the program philosophy. Teachers may reference and view the program's tenets in a Claim, Evidence, and Reasoning (CER) framework. For example, students claim that scientific inquiry is the essence of learning science. The evidence and reasoning for this are that students learn science by observing phenomena, asking questions, conducting investigations, and using scientific practices to answer those questions. The best way to learn science is to do science.
- Materials explain the intent behind the instructional design of the program. The teacher's guide includes a section on why they chose to use the 5E model lesson plan. Using the 5E Instructional Model with the Dynamic Science Courses says, "Our instructional model incorporates all of the elements of 5E and more. Our curriculum is flexible, interactive, and hands-on. It implements productive designs for students to struggle and succeed in multiple learning pathways. We believe in building a community of learners through engaging activities that appeal to various learning modalities and diverse learners." Teachers can choose from various suggested activities for students to explore new concepts through concrete learning experiences, individually and collaboratively. These experiences include hands-on investigations, problem-solving, virtual labs, reading, writing, and acting as scientists and engineers. Students engage in critical thinking and scientific decision-making. Students use writing and structured peer interactions to explain their thinking and conceptual understanding. They build knowledge systematically and coherently. The teacher adds layering to the learning with content videos, new terms, and practice. Students elaborate on and extend their learning by applying it to a new situation or problem. Teachers can choose various activities to enhance students' more profound understanding of the concept and reinforce new skills.

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Indicator 4.1

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

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

Meets | Score 4/4

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

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

Evidence includes but is not limited to:

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

- Materials support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. In lesson 8.7B, Simultaneous Action of Newton's Three Laws of Motion, students move through stations and use models to investigate how amusement park rides utilize Newton's laws of motion. Students observed a picture of an amusement park ride at each station and provided materials. Students work in teams to make the amusement park ride shown in the picture using the given materials. Students discuss how all three laws of motion incorporate into that ride. Students complete the writing section for each station in the student handout.
- On page 2 of the Summit K12 Philosophy document, it says, "Scientific Inquiry is the Essence of Learning Science." It states that students learn science "by observing phenomena, asking questions, conducting investigations, and using scientific practices to answer those questions."

- The materials provide consistent learning opportunities that support meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. Page 2 of the Summit K12 Philosophy document states that the course includes "600+ opportunities for students to investigate, explore, and experience science as scientists and engineers."
- There is a science and engineering practices section that goes through each SEPs. The skills companion explains the process in a PowerPoint with suggested activities and questions. There is also a vocabulary check over each skills companion that allows students to apply the skill. For example, in the Lesson Guide for 8.11B, Impact of Human Activity on Global Climate, students get the opportunity to read, write, and think like a scientist. In Literacy Connection: Human Activities and the Global Climate, students read, research, and describe additional evidence supporting how human activities are influencing the climate. In The Sustainable City, students collaborate as civil and environmental engineers to design and create a prototype of a city that is completely carbon neutral or carbon negative.

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

- Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts. For 8th grade, there are 28 leveled Non-literary/Non-fiction texts. Science reporting category and science TEKS organize the texts. Also available are teacher notes to guide student reading. At the end of each e-book, students apply a SEPs process skill, such as making predictions about which objects in the classroom would be the hardest to move. For example, following the Science Literacy section of the main course page, students are provided with various e-books related to the various concepts studied in the reporting categories. For example, in reporting category one, Matter and Energy, an e-book titled “The Same Amount of Matter” provides opportunities for students to understand that chemical reactions turn reactants into products and that in a chemical reaction, atoms in the matter rearrange, but no atoms are lost or gained. The book's first page shows students how they can be strategic learners by listing the key vocabulary terms and reminding the reader how they can synthesize what they read by gathering facts from the text and adding their thoughts before summarizing. The book explains the concept and contains several text features such as subtitles, bolded terms, captions, graphics, and call-out boxes.
- The materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts. According to the Philosophy document, the course includes "Differentiated science literacy modules with over 200 e-books including relevant second language acquisition scaffolds and supports covering the Science TEKS, SEPs, ELPS, and RLA TEKS." The materials provide multiple opportunities to engage with scientific texts, including pre-reading and vocabulary, to help them develop an understanding of concepts. In the 8th-grade Differentiated Literacy section, 28 e-books cover 8th-grade TEKS and a few 7th-grade TEKS. Inside the e-books are a list of science vocabulary words, before, during, and after reading questions, reading strategies, fully labeled diagrams, and then the vocabulary words defined in the text. For example, in the e-book on The Lifecycle or a Star, 8.9A, the vocabulary words *nebula, gravity, mass, red giant, supernova, white dwarf,* and *black hole* are listed at the beginning of the e-book and then defined on pages 1,2, and 4.
- Another example in the Differentiated Science Literacy section is a list of topics and TEKS with an e-book that goes along with each. In 8th grade, there are twenty-six e-books, some in each reporting category. Each has vocabulary defined separately from the text, graphics, and key ideas. In Acids, Bases, & pH (8.6D), the vocabulary words are *acids, bases, poisonous, pH scale,*

neutral, indicator, and *litmus paper*. At the end of the reading, students predict if the solution in the picture is an acid or base and have to explain their reasoning. Each text has a Reading Guide and a Study Guide with an answer key in the Science Teacher's Literacy Guide. Each topic includes four texts. Each text includes vocabulary boosters and a content test.

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. For example, in lesson 8.11C, The Carbon Cycle, students create a model of the carbon cycle in their journals. The drawing contains labeled images of carbon cycle elements, such as plants and animals, with directional arrows explaining the flow of carbon on our planet. For example, in reporting category two, Force, Motion, and Energy, students participate in the lesson by engaging with the interactive e-posters. Each lesson in the unit has a corresponding poster or poster that includes key concepts with interactive features such as highlighting, a draw/write tool, and sticky notes. One interactive e-poster for lesson 8.8A, Characteristics of Waves, contains information on how light reflects off objects, is refracted, or absorbed. Images include laser beams on mirrored surfaces and written explanations and graphic models of each.
- Materials provide students with opportunities to engage in graphic modes of communication. For example, after reading the e-book on Physical and Chemical Changes, students are asked on page 6 to communicate their knowledge of the two types of changes by completing a chart where they classify seven different examples of changes as either Physical or Chemical. Materials provide students with opportunities to engage in written modes of communication. For example, in the Lesson Guide for Disruption of Energy Transfer in Food Webs in the Teach and Discuss section, students are asked to read "A Changing Ecosystem" and then summarize how disruption affects energy flow in the Everglades.
- In the Ecological lesson Succession (8.12B), students choose a specific biome and create a comic strip or flipbook that illustrates primary succession, secondary succession, or both in that area. In The Effect of Succession on Populations and Species Diversity, students view graphs of population changes and species diversity over time and answer questions about how succession influences these factors. For example, in the lesson Newton’s Second Law of Motion (8.7A), after a teacher demonstration of the toy car, students summarize their observations in their notebooks, creating labeled diagrams to help illustrate the relationship between mass, force, and acceleration in this situation. In Design and Investigation, students design and execute an Investigation in which one F = ma formula variable manipulates and shows the results. Students create a lab sheet to go with the analysis that contains the following components: materials list, procedure, data table, and conclusion with evidence. Finally, students evaluate their experimental designs, reflect on the methods used, and identify any possible sources of error/limitations of their experiment. They write a summary to describe what they might do if they repeat the investigation in the future.

Summit K12 Dynamic Science Grade 8

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

- Materials 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. For example, in lesson 8.8C, students observe how water behaves in space as they watch a video clip of an astronaut aboard the ISS experimenting with what happens when someone strains a soaking wet washcloth. Students write their thoughts about this phenomenon in their journals. Later in the lesson, students participate in an inquiry lab to design and test the properties of water. Students decide on experimental goals compared to a control group. Students follow design constraints and safety precautions as they work through tasks, including defining practical goals, developing a hypothesis, creating an approved experiment design, designing an approved experimental procedure, conducting the approved experiment, collecting experiment data, and synthesizing laboratory data and scientific knowledge to explain results.
- In the Lesson Guide for Behavior of Water, 8.6C students first engage with the properties of water by comparing how wringing out a wet rag is different on Earth than in space. They then move through a series of activities and reading articles where they investigate several additional properties of water. Each activity is progressively more challenging. Materials support students to act like an engineer and can learn from the engineering design process. For example, students design and conduct their experiments. In 8.6C, students design an experiment to test the different properties of water, including cohesion, adhesion, surface tension, and capillary action.
- 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. For example, in the lesson Impact of Natural Events on Global Climate (8.11A), in the activity, Chicxulub Crater Research students will read the National Science Foundation article “A Moment that Changed Earth” to learn about the kinds of evidence scientists use to determine how meteor impacts caused climate change. Students synthesize the article into a step-by-step timeline of events set off by the implications and summarize the effect on Earth’s climate. In The Global Conveyor Belt, students watch an animation and read an article from NOAA to learn how a global-scale system like the conveyor belt works to circulate heat energy through ocean currents. The teacher leads a discussion about ocean water circulation due to these currents. What do students notice about how cold and warm waters move around the globe? What might happen to the climate near the equator if these currents abruptly stopped? What about in your region? What evidence can they cite to support their answers? After the discussion, students write a summary in their notebooks responding to the following prompt: Use scientific evidence to describe how abrupt changes in ocean currents can influence climate. In the activity Getting To The Core: The Link Between Temperature and Carbon Dioxide, students get first-hand experience analyzing the link between atmospheric temperatures and carbon dioxide concentrations by looking at ice-core data spanning hundreds of thousands of years. After completing this activity, students use the scientific evidence they learned to describe how natural events influence climate and list the possible causes.

Summit K12 Dynamic Science Grade 8

Indicator 5.1

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

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

Meets | Score 4/4

The materials meet the criteria for this indicator. Materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

Materials prompt students to use evidence to support their hypotheses and claims. Materials include embedded opportunities to develop and utilize scientific vocabulary in context. Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. Materials provide opportunities for students to construct and present developmentally appropriate written and/or verbal arguments that justify explanations to phenomena and solutions to problems using evidence/guidance 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 provide opportunities for students to develop how to use evidence to support their claims. In the Teacher Resources is a document called Science Writing/CER; this 20-page document explains the use of the CER writing prompts and grading rubrics with students. It also gives several different examples. Students are given a situation or asked to use the e-book. Then, they are given a prompt or question. Then, they form their claim, cite evidence, and share their reasoning.
- Middle school students gain extensive experience writing evidence-based explanations for their hypotheses and claims with CER opportunities. The Sensemaking Guide prompts students to collect evidence, collaborate, and revise their model.
- The materials specifically prompt students to use evidence when supporting their hypothesis and claims. For example, in the Reading: Human Activities and the Global Climate expert group reading activity, students are asked to read and become experts on a specific type of human activity, such as deforestation. They then share their finding with their learning group. In their learning groups, they will complete a graphic organizer where they make specific claims and cite evidence directly from the reading they completed in their expert groups. The materials allow students sufficient opportunities to write a hypothesis and then support it with evidence.

Summit K12 Dynamic Science Grade 8

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

- Materials include embedded opportunities to develop and utilize scientific vocabulary in context. The materials present scientific vocabulary using multiple representations. For example, a Vocabulary Mastery section is located on the course homepage. The Vocabulary Mastery lessons match the content lessons for ease of use. Each lesson contains a visual representation and an interactive feature where students choose a correct word to help define the vocabulary term. For example, in 8.12A Disruption of Energy Transfer in Food Webs, images of various natural disasters are presented above the sentence, “A natural disaster causes a/an ____in an ecosystem.” Students choose which word (biotic factor, ecological succession, abiotic factor, disruption) best completes the description.
- For example, all TEKS lesson videos include visual content vocabulary introduction and review. In lesson 8.10C, Tropical Cyclones, students see the lesson's vocabulary in action during the video. The vocabulary terms: *hurricane, ocean current, surface temperature, tropical cyclone,* and *typhoon* are included in the lesson components as students participate in the lesson opener to establish relevance.
- The materials include opportunities to develop and use vocabulary after having a concrete or firsthand experience to which they can contextualize new terms. For example, in the Lesson Guide for 8.10C, Tropical Cyclones, first watch a video on Hurricane Katrina and complete a graphic organizer that helps them start gathering basic facts. Then, students watch the NOAA video How do Hurricanes Form, read an article on hurricane formation, and complete a sequencing activity, all before making a Mind Map where they use the vocabulary and share it with their peers.
- The materials present scientific vocabulary using multiple representations. For each TEKS, there are e-books that both define the vocabulary words and give examples in context. There are videos over each concept incorporating key vocabulary terms and study guides that go over core vocabulary. Additionally, an e-poster stresses key vocabulary and Vocabulary Mastery activities for all grade-level TEKS and supports TEKS from previous grades.
- In The Science Literacy section, a section called Vocabulary Mastery breaks down into categories. Within the categories is a lesson on each TEK, including scaffolded TEKS from previous years. The vocabulary lesson on Disruptions of Energy Transfer in Food Webs (8.12A) includes a picture with a sentence description of a word that the student must select from a drop-down menu. They can click to turn over the flashcard to see the definition (disruption, ecosystem, food web, human intervention, natural disaster, population, species, transfer of energy). For example, 15 e-books in grade 8 include graphics and words to describe vocabulary. At the beginning of each e-book, there are vocabulary boosters (in English and Spanish) that include a picture, a word, and a definition that students can read aloud. The e-books contain drop-down questions to help develop vocabulary within the context. There are also open-ended question types that include word banks.

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

- The materials integrate argumentation and discourse within stages of the learning cycle. For example, in the Lesson Guide for 8.11B, Impact of Human Activity on Global Climate, there is an Engineering Connection called The Sustainable City. In this challenge, students work with a group to design and make a model of their city. This process involves argumentation and

discourse as ideas are researched, discussed, used, or discarded. Students will then present their city to the class, listen to feedback, and revise and modify their design.

- The materials provide opportunities for students to develop how to practice argumentation and discourse. The materials include a set of lessons on Science and Engineering Practices. There is a lesson on the Use of Evidence to Communicate Findings. The Skills Companion for this lesson explains argumentation, gives an example of how it works, and then asks the students to practice with two scenarios. Key elements of scientific arguments using evidence are listed, including a claim, evidence, reasoning, counter-argument, and conclusion. The presentation also includes activity examples to use with students, such as collaborating with classmates to find a solution to minimize the browning of sliced apples or determining the best use of a given set of materials in keeping a beverage warm. An accompanying vocabulary activity also reviews the key concepts involved in argumentation.
- Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concepts and grade level. For example, in the lesson Impact of Biodiversity on Stability of Ecosystems (8.12C) in Partner Talk, students study two environments to determine which environment has the more extraordinary biodiversity and why. Student pairs share their responses with the class. In Food Web Comparison, students compare two food webs to determine which is more biodiverse, stable, and sustainable by exploring what would happen in each ecosystem if one species were extinct.
- In the lesson Impact of Human Activity on Global Climate (8.11B) in Establishing Relevance, students study graphs in a think-pair-share and address the following questions: “What trends or patterns do you notice? Why do you think the global average temperature is increasing? How do you think a rise in the global average surface temperature has contributed to more severe hurricanes and melting ice caps? Can you think of anything else that is an effect of a rise in global temperature?” In the activity Global Temperature and Carbon Dioxide Connection, using information from the graph and your knowledge of the greenhouse effect, write a conclusion using the CER method) that answers the question: “How are energy transfer temperatures related to carbon dioxide levels?” Then, students are asked to use a rubric to evaluate what they did well on and what they can improve on for their CER conclusion. In the activity Tree Rings and Climate, students act as scientists to find evidence of climate change in tree rings, temperature data, and precipitation data. In the activity The Cost of Our Impact, students decide, using multiple pieces of evidence, on a plan to present to a town desiring a new electrical supply system. In the activity Debate: Influences on Global Climate as a wrap-up to 8.11A and 8.11B, students debate or respectfully argue and propose solutions to Part 1: “Which has a greater effect on global climate: natural events or human activity?” Part 2: “Propose a scientific solution to lessen the effect on global climate.” In preparing their arguments, students should relate the impact of both past and current research on scientific thought and society, including the process of science, cost-benefit analysis, and contributions of diverse scientists.

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

- The materials provide opportunities for students to justify explanations of phenomena and solutions to problems using written and verbal arguments to problems using evidence acquired from learning experiences. For example, in the Lesson Guide for 8.12B, Ecological Succession, there is an activity called Ecological Succession Photo Journal in the Apply and Extend section. In this activity, students take photos of areas around their school and neighborhood,

demonstrating the primary and secondary succession stages. Then, they create a slideshow with written explanations to present to the class.

- Students are given multiple opportunities to create arguments to explain phenomena studied in class. The teacher and student resources provide guiding criteria for developing a scientific argument, such as rubrics or checklists. The CER documentation in the Teacher's Guide includes information about the CER model. This document explains the CER model, including a graphic organizer and sample scoring rubric. Teachers and students may use this resource as appropriate.
- Materials prompt students to use evidence to support their hypotheses and claims. Each unit begins with a phenomenon. Students will build their understanding of the phenomenon throughout the unit, using the Phenomenon Sensemaking Guide as a graphic organizer to document their learning. The lessons and investigations build in depth and complexity and include SEPs and RTCs as students progress in sensemaking and culminate in a final evidence-based explanation of the phenomenon with an accompanying model. Each TEKS unit includes at least one CER writing opportunity through this Sensemaking Guide. For example, the Science and Engineering Practices section has a lesson called Use Evidence to Communicate Findings. The lesson includes a Skills Companion PowerPoint that goes through the CER method, which is the same for grades 6-8. The activity at the end of the PowerPoint lesson is also the same for all grade levels. The lesson also includes a Vocabulary section where students use a drop-down to select the word to complete the sentence; then, students can flip the card to review the word's definition. Grade 6 reviews five words (*evidence, collaboratively, idea, principle, argumentation*), while grade 8 includes eight words (*theory, model, and empirical evidence*).
- There is guidance for the teacher to explain how to construct verbal/written arguments. For example, in the lesson Theories of the Origin of the Universe (8.9C) in the activity Origin of the Universe Theories, students build upon their research about various theories for the Origin of the Universe. The teacher hosts a debate for student groups to argue for their chosen theory. Students should back up arguments with scientific evidence that supports the theory; there is guidance on how students will conduct arguments.

Summit K12 Dynamic Science Grade 8

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

Partial Meets | Score 2/4

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

Materials provide some teacher guidance on anticipating student responses and using questioning to deepen student thinking. Materials include some teacher guidance on scaffolding, 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.

- The materials provide some support for teachers to deepen student thinking through questioning by including the Summit K12 Questioning Guide. Guidance is given to ask questions to clarify thoughts, hold class discussions, or ask questions to dig deeper during an activity, such as during a lab. While this is helpful, the guidance is outside the lesson materials and requires teachers to go back to the guide and then try to apply the strategy to the lesson. This also requires that the teacher do the anticipating of student responses themselves and then how to respond. Each unit begins with a phenomenon with the following documents: Teaching with Phenomena, Phenomenon Sensemaking Guide, and Phenomenon Teacher Guide. Students work through the guide as they build understanding through investigations, readings, and discussions. Teachers will guide and scaffold this sensemaking through questioning and discourse. However, limited questioning is provided, and anticipated student responses are only the "correct" answers, so there is no guidance for when a student's responses are outside what is expected by the materials.
- The materials sometimes provide teachers with possible student responses to questions and tasks. For example, in lesson 8.6E, Law of Conservation of Mass, students investigate how mass is conserved in chemical reactions and relate the conservation of mass to the rearrangement of

atoms using chemical equations, including photosynthesis. In the lesson opener, students explore what happens to the mass of a glow stick before and after its activation, then answer discussion questions. The Teacher's Guide for this activity informs the teacher on possible student responses: 1. What kind of change happens inside a glow stick? (A chemical change.) 2. What happened to the mass of your glow stick? (The glow stick has the same mass before and after the activation.) 3. What questions does this investigation make you have? (Accept and encourage all questions at this point of the lesson). While this provides some guidance, it is limited by what is the anticipated correct answer and does little to guide the teacher when responses are outside these parameters.

- The materials provide some teacher responses to possible students' responses, including how to build on students' thinking. For example, in lesson 8.12A, Disruption of Energy Transfer in Food Webs, students explain how population changes, natural disasters, and human intervention impact energy transfer in food webs in ecosystems. In the lesson opener, students study an image of trees clearing from a forest. They discuss with a partner what they observe. The teacher tells students that the image shows the rainforest clearing for a palm oil plantation and then asks, "How do you think the energy flow impacts this ecosystem? What may have happened to the organisms that live in this ecosystem?" The teacher allows time for pairs of students to answer and then asks students to share with the whole class. However, there is no guidance for teachers on what possible student responses could arise during the sharing time or questioning that would guide correct responses or further deepen students' understanding.
- The materials provide teachers with some possible student responses to questions and tasks. One example occurs in the Observing Light Waves lab for 8.8A, Characteristics of Waves. Materials offer teachers questions to ask students about their observations during steps 4 and 5. Immediately after the question, the answer is indicated in blue font. For example, "Ask students to look at the light on the paper more closely and record what they see. Students should observe the full range of the visible light spectrum as small rainbows." However, materials only offer entirely correct responses. Materials provide no guidance to teachers for incorrect responses or other anticipated responses. There are no guiding documents within the Lesson Guides, activity guides, or teacher resources on questioning.
- Materials provide some teacher guidance on anticipating student responses. For example, materials provide Study Guides for each TEK, including answer keys to provide possible student responses. However, they do not offer possible incorrect answers or partial answers. In the lesson Ecological Succession (8.12B), the teacher's Lesson Guide provides multiple opportunities for questions in Establishing Relevance and the Coral Reef Succession activity. Materials offer an example for the Ecological Succession Comic Strip or Flip Book activity, so teachers know what to expect and look for. However, the questioning does not provide opportunities to deepen understanding when students struggle.

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

- The materials provide some embedded support for the teacher in introducing and scaffolding students' development of scientific vocabulary. The Concept Mastery section on the program's home page requires students to achieve vocabulary mastery. The first teach-lesson sequence requires students to get 80% or better on the vocabulary before completing Formative Assessment 2. The assessments include embedded supports such as a context sentence and image with audio support, a Spanish scaffold, the part of speech, and a grade-appropriate definition. If the student does not master the vocabulary on the first attempt, they can make a

second attempt. Images dynamically change on the second attempt to prevent memorization and focus on learning. While this is a vocabulary support, it does not provide teacher guidance if student mastery does not increase and it is provided outside the context of the lesson.

- The materials provide some support but little teacher guidance in scaffolding and supporting students' vocabulary development. In addition to an e-poster, each TEKS lesson also includes a detailed TEKS video that explains and defines each vocabulary word in context. At the end of each video, these vocabulary words are reviewed to reinforce these scientific concepts. However, there is no teacher guidance for how to support students if these materials do not result in student mastery of the vocabulary. While the videos are provided for each lesson, they are not necessarily built into the context of the lesson but are provided as an additional resource without teacher guidance.
- The materials provide vocabulary information but lack teacher guidance. For example, in lesson 8.8A, Characteristics of Waves, the content vocabulary: *amplitude, crest, electromagnetic spectrum, frequency, transverse wave, trough,* and *wavelength* are represented by simple, clear illustrations. The Science Literacy-Vocabulary Mastery section includes all content and instructional vocabulary. Students may access the vocabulary mastery section at any time to practice and master their language. Teachers can view the number of attempts to reach mastery in the teacher reports. This lacks teacher guidance for how to support students in the context of the lesson if they struggle with the scientific vocabulary.
- The materials provide limited embedded support for the teacher in introducing and scaffolding students' development of scientific vocabulary. At the beginning of a teacher Lesson Guide is a list of Core Vocabulary students will work with during the lessons. For example, for 8.12A, the core vocabulary consists of: *disruption, ecosystem, food web,* and *natural disaster*. Later, in the Teach and Discuss section, definitions, explanations, and examples for these terms are given to the teacher. The materials do not guide the teacher in supporting students' use of scientific vocabulary in context.
- Materials include some teacher guidance on scaffolding and supporting students' development and use of scientific vocabulary. For example, the Lesson Guide provided for each TEK provides key concepts with bolded vocabulary. They provide a sequence that prioritizes words and identifies misconceptions. Sometimes, materials provide a key idea PowerPoint within specific units. While these materials are provided, there is limited teacher guidance for how and when to use these in the context of the lesson to best scaffold and support students' scientific vocabulary development.

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

- The materials provide teacher supports to prepare for student discourse. For example, in the program's supplemental resources, Introduction to Science slides are available for teachers to use with students. The Scientific Conversations section's learning objectives are: to communicate scientific ideas clearly and express thoughts effectively. The following slide goes further into a scientific conversation by listing the following components: making observations, asking questions, and communicating with others by sharing, recording, responding, and drawing conclusions. Another slide in this set discusses the importance of sharing information in science. It mentions, "Science is never based on the ideas or experimentation of a single person. Scientists work together and must be able to communicate clearly and respectfully." The slide gives tips for sharing, such as: being brief, transparent, providing an example, and speaking clearly.

- The materials provide general question stems for supporting student discourse and using evidence in constructing written and verbal claims. The question sentence stems include: “Can you explain to me__? What do you think__? What evidence do you have__? Are you saying__? I agree with__ because__. I respectfully disagree with__ because__.” The materials provide some guidance that teachers can use to give feedback to students while engaging in discourse. Materials include guiding questions for teacher use during the engaging portion of lesson 8.12B, Ecological Succession. Students build a house using various materials and relate the construction of their homes to the process of ecological succession. Afterward, the students engage in discourse using prompts from the teacher. The Teacher's Guide includes the following questions with suggested student responses: “What part of the house did you build first? Why? What was the process you used to build your house? In what order did you build things? How would you feel if a tornado destroyed your home? Would you enjoy having to recreate the house after just having constructed it?”
- The materials provide teacher supports to prepare for student discourse. Inside the Introduction to Science resource is a PowerPoint called Scientific Conversations. This PowerPoint explains how scientists communicate. For example, page 2 gives tips for making observations, such as being specific and precise, page 6 provides sentence stems for asking questions, and page 8 offers tips for verbally sharing ideas.
- The materials provide guidance that teachers can use to provide feedback to students while engaged in discourse. For example, the Science and Engineering Practices section has a PowerPoint called Use Evidence to Communicate Findings, which gives an overview. In the lesson Theories of the Origin of the Universe (8.9C) in the activity Origin of the Universe Theories, students build upon their research about various theories for the Origin of the Universe. The teacher hosts a debate for student groups to argue for the theory of their choosing. Arguments should be backed up with scientific evidence that supports the theory.

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

- Materials support and guide teachers in facilitating the sharing of students’ thinking and finding solutions. The materials provide teacher support and guidance to engage students’ thinking in various modes of communication throughout the year. Materials provide examples of exemplars of student-written responses. Teachers can use the exemplars as a guide to help them facilitate students showing their thinking in a written form. In lesson 8.7B, Simultaneous Action of Newton’s Three Laws of Motion, students move through stations to investigate and describe how Newton’s laws apply to amusement park rides. Within their group, students discuss how all three laws of motion incorporate a particular ride of a station. Students then document, in a table, the definition of each law and an explanation of how each law of motion applies in each amusement park ride. The Teacher’s Guide provides exemplary written responses.
- The materials provide teacher support for facilitating the sharing of students’ finding solutions. Materials provide feedback tips and examples teachers can use to support students throughout the learning cycle. In lesson 8.12A, Disruptions of Energy Transfer in Food Webs, students work in partners to analyze how different disruptions affect the energy flow in a food web. Student pairs brainstorm ways the energy flow in the food web will be disrupted based on the interruption given to them by rolling a die. The teacher uses guiding questions to help students analyze the food web: “How could populations be affected? Would there be an indirect effect on other populations? If so, how?” The teacher uses an example of the student data table to facilitate student discussion in finding solutions.

- The materials provide examples of student's written responses to assist the teacher. Numerous labs and activities include teacher keys to activities. Within the teacher keys, it gives correct student answers to questions, discussion prompts, diagrams, and summaries. For example, the teacher key for Breaking Down the H-R Diagram states correct responses to all questions in the lab, including the Classify and Compare question, "Classify the Sun and compare it to another star of your choice." The correct response is, "The Sun is classified as a main sequence star in spectral class G. It has an average temperature and luminosity. When compared to Vega, the Sun is dimmer and cooler." The materials provide exemplars of students' verbal responses to assist the teacher. For example, during the Engage activity for 8.10C, the teacher is prompted to ask a series of verbal questions. The correct or expected student responses are indicated in blue font following the questions. Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions. For example, materials provide Study Guides for each TEK, including answer keys to provide possible student responses.

Summit K12 Dynamic Science Grade 8

Indicator 6.1

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- In the 5E Model slide presentation located within the Teacher's Guide on slide 59, the materials state that students are evaluated in a variety of formats as follows: a Formative Assessment by TEKS, Vocabulary Mastery Digital Flashcard Step, Study Guides - Print and Interactive, Science Literacy Assessments and Self Assessments, Assessment Bank and Lab Investigation write-ups.
- Materials include formative assessments to measure student learning. During a unit of study, students are assigned online practice. Students begin with Formative Assessment 1 and then watch a TEKS video lesson before moving on to the TEKS vocabulary section; the materials provide multiple attempts to achieve at least 80%. This score is required to unlock the second formative assessment. Formative Assessment 2 is an entirely different set of items from Formative Assessment 1. Teachers can choose to assign lower grade level vertically aligned scaffolds as needed to differentiate instruction.
- The materials include formative assessments to measure student learning and determine the next steps for instruction. Inside the Concept Mastery module are several formative assessments for each grade level TEKS and supporting TEKS from lower grades. According to the Concept Mastery explanation page in the Teacher Resources, students are assigned Formative Assessment 1 once learning has begun on a particular TEKS. Further into the learning process,

students watch a TEKS Video and take a Vocabulary Assessment. Scoring at least 80% on the Vocabulary Assessment unlocks Formative Assessment 2. Materials provide students with multiple attempts to reach the 80% minimum score required. Formative Assessment 2 contains a different set of questions than Formative Assessment 1.

- The Teacher Resources contain an eight-page document about the Assessment Bank. This document shows how teachers can create their custom assessments using a variety of question types found in the Assessment Bank. Teachers access the Assessment Bank by going to the Concept Mastery module and clicking the Assessment Bank icon.
- Materials include assessments that include formal and informal opportunities to assess student learning in various formats. For example, in Concept Mastery, there are Formative Assessment 1, Vocabulary, and Formative Assessment 2. Teachers may reference these assessments in the Evaluate section of the 5E lesson model. These assessments could be used as diagnostic, formative, or summative; however, they are called “Formative” in the material. With the 5E model lesson guides, numerous informal and formal opportunities exist to evaluate students. Assessment opportunities include but are not limited to hands-on investigations, virtual simulations, science literacy guided readings, and study guides.
- Within the materials, they provide examples across grade levels to enhance student understanding. The summative assessment provided will assess student knowledge and assist teachers in evaluating student mastery of scientific concepts.

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

- As the TEKS outlines, the materials assess all student expectations by grade level. The materials contain a cohesive scope and sequence that maps out and outlines what teachers will teach in a specific course or grade level. For example, each TEK outlines the lesson components of the 5E Model: Engage & Establish Relevance, Key Concepts, Apply/ Extend, and Evaluate. Within each component are the relevant activities of that component and the approximate time each activity will take to complete.
- The materials indicate which student expectations are assessed. Lessons and their related activities and assessments are available for each TEK. For example, activities are listed by TEK for study guides, lesson guides, and formative assessments. These lessons contain information within four reporting categories: Matter and Energy, Force, Motion and Energy, Earth and Space, and Organisms and Environments. Teachers may assess the student expectations within the introduction of each lesson as well as in the scope and sequence of the materials.
- The materials assess all student expectations, as outlined by the TEKS, by grade level. The teacher resources contain a cohesive scope and sequence that maps out and outlines what instruction teachers will deliver in the 6th grade. The scope and sequence are organized by reporting category and TEKS to ensure all TEKS are covered over the year. The correlating teacher lesson guides are written for one specific TEKS at a time and include an Evaluate section that consists of the four components used to assess student mastery of the TEKS covered in that unit - Formative Assessment 1, TEKS Video, Vocabulary Review, and Formative Assessment 2.
- The materials indicate which student expectations are assessed. The Concept Mastery module breaks down by reporting category and TEKS. There are multiple assessments for each TEK, both on grade level and from supporting grade levels. For example, teacher lesson guides are grouped by reporting category and then by TEK. Each TEK has a lesson guide following the 5E model to teach and assess student knowledge.

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

- The materials include assessments requiring students to integrate scientific knowledge and science and engineering practices with recurrent themes appropriate to the student's assessment expectation. For example, in lesson 8.9C, students use a model to explore how the universe expands. First, students partially inflate a balloon to the size of a fist. Then they place ten-star stickers on it, use a permanent marker to number the stars, and add a depiction of a wavelength a few centimeters long. While holding the balloon shut, students use a string to measure the distance from star #1 to each other star and the total length of the wavelength. Students use a ruler to determine the distance in centimeters. Students inflate the balloon with three more breaths to make it about the size of a grapefruit, then observe and record what happened to the stars and the wavelength using specific sentences. Students take measurements for the first inflation the same way they handled the initial measurements. Students inflate the balloon again to about double the size, take measures for the second inflation, and record their data. Finally, students graph their data and answer reflection questions such as: If the stars represent galaxies and the balloon represents space, describe what this model shows. What happens to the galaxies as space expands? What exactly is growing – space, matter, or both?
- Another example is found in lesson 8.13B. Students use pipe cleaners and different colored beads to make bracelets representing different combinations of inherited traits. They relate the beads to genes inherited from their parents and relate different combinations of traits to the various combinations of inherited traits found in humans. The traits include gender, rolled tongue, hitchhiker's thumb, earlobes, hairline, and species. Student groups create a bar graph of the class data and analyze the findings to determine which traits appear more often, the combinations of traits in the class, students with the same combinations, and the traits all students share.
- The materials include assessments that integrate scientific concepts and science and engineering practices. For example, the Apply and Extend section of the lesson guide for 8.9C consists of an Activity called Origin of the Universe Theories Extension. The explanation for this activity states that students will "build upon their research about various theories for the Origin of the Universe. Host a debate for student groups to argue for their chosen theory. They should back it up with scientific evidence that supports the theory." The materials indicate that teachers may utilize SEPS 8.3B and C.
- Materials include assessments that integrate scientific concepts and science and engineering practices (SEPs). For example, in the lesson Function of Genes (TEKS 8.13B), there is an activity titled Story Time in the Apply and Extend section. In the activity, students read the genetic services frequently asked questions from the Texas Department of Health and Human Services website. Students use the reading and what they have learned to create a children's book for 8–10-year-olds with text and images that describe

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

- Materials include assessments that require students to apply knowledge and skills to a new phenomenon or problem. For example, in lesson 8.6E, students design, plan, and conduct a comparative investigation to test how the mass in a chemical reaction is affected in a closed system compared to an open system. Students choose reactants such as effervescent tablets and water, baking soda and vinegar, yeast and water, cow's liver, and hydrogen peroxide. First,

students identify the steps or describe how they will conduct the investigation. Then they record the data and draw a graph visually representing the data collected in the provided data table. Students write a conclusion that answers their scientific question and includes data to support their answer and scientific reasoning. Students evaluate their experimental design, reflect on methods used, and identify any possible sources of error/limitations of their experiment. Finally, students write a summary describing what they might do if they repeat this experiment.

- Another example is in lesson 8.10A. Students observe the phenomenon of convection currents within a jar. The teacher places a large glass jar with just enough water to cover the bottom of it on a hot plate on low heat. Foil is placed on top to cover the opening and a baggie with ice over the foil. An incense stick is lit and then blown out so that it is still smoking. The smoking end of the incense stick is placed under the foil so it is inside the jar, with the rest sticking out under the foil. The foil is sealed over the opening to prevent smoke from escaping the pot. Students draw what they observe in their science journals and discuss the following questions: “What movement did you observe? What is this movement an example of? What is causing the movement? How do warm and cool gasses move? What is convection?”
- The materials include assessments that require students to apply knowledge and skills to novel contexts. For example, in the Engage activity for 8.12B on Ecological Succession, students look at photos of Mount St. Helens before and after the eruption. Next, they will read a short article about environmental changes and answer a series of questions on their paper regarding the impacts on the ecosystem. Later, in the Apply and Extend section, students read an article on Coral Reef Succession and prepare a presentation on the process, including causes, timelines, etc.
- The materials include assessments that require students to apply knowledge and skills to novel contexts. The Concept Mastery module contains two formative assessments that each have ten questions. The questions require students to use their knowledge and skills in contexts different from the ones used in the regular lesson materials. Additionally, the question contexts for Formative Assessment 1 are different from those for Formative Assessment 2, providing a wide variety of new ways for students to apply their knowledge and skills.

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Indicator 6.2

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

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

Partial Meets | Score 1/2

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

Materials include information or resources that provide guidance for evaluating student responses. Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level. Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension. Materials provide some variety of resources without teacher guidance on how to leverage different activities to respond to student data.

Evidence includes but is not limited to:

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

- Materials include information and/or resources that provide guidance for evaluating student responses. The Teacher's Guide includes a link to a document for Science Writing/CER. Inside this document, on page 12, it shows a scoring rubric for a Short Constructed Response which is located inside the Science Literacy, Vocabulary Mastery module. Formative assessments are available for each lesson.
- Materials include resources for evaluating student responses. Student activities include answer documents that give the correct answers. A few assignments contain a rubric to guide the teacher in evaluating a student's response. For example, the Apply and Extend section of 8.11B on the Impact of Human Activity on Global Climate contains an activity called "Ocean Acidification." Page 2 of the Teacher's Guide includes a rubric for scoring the students' plans and investigation. The rubric provides a column called "Standard" that provides baseline teachers should use to evaluate student plans. Additional columns provide places where the teacher can note what the student did well and what the student needs to improve.
- Materials include information and/or resources that provide guidance for evaluating student responses. For example, in the lesson Impact of Human Activity on Global Climate (TEKS 8.11B), there is an activity titled The Cost of Our Impact. Using multiple pieces of evidence, students

decide on a plan to present to a town desiring a new electrical supply system. In part two, students reevaluate and revise; part three is the final proposal.

- Materials include information and/or resources that provide guidance for evaluating student responses. For example, in the lesson Impact of Human Activity on Global Climate (TEKS 8.11B), there is an activity titled Sustainable City. Students collaborate as civil and environmental engineers to design and create a prototype of a city that is completely carbon-neutral or carbon-negative. There is a student handout.

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

- Materials provide guidance documents and resources to support teachers' analysis of assessment data. Materials include assessment tools that yield data teachers can quickly analyze and interpret. Teachers may access these tools in the "Reports and Dashboard" section of the Teacher's Guide.
- The materials provide guidance documents and resources to support the teacher's analysis of assessment data. The materials include two formative assessments and vocabulary assessments in the Teacher's Guide "Reports and Dashboards."
- The materials provide assessment tools that result in data reports that teachers can use to track student progress. Teachers can generate reports for Concept Boosters and Vocabulary Boosters. These reports show the score the student earned on their assessments. Each assessment covers only one TEKS, which allows the teacher to see how a student is doing on each specific TEKS. The reports can be generated for individual students or entire classes.
- Under reports in Content Mastery, a teacher can see first-attempt, vocabulary, and second-attempt scores by TEKS. This report can be seen individually or by class. A teacher can download the report into an Excel spreadsheet that they can manipulate with colors or groupings.
- Additionally, materials include an "Assessment Bank" document that provides support to teachers' analysis of assessment data to respond to students' individual needs. For example, the "Assessment Bank" shows a screenshot of a Concept Mastery assessment screen, showing that student scores are color-coded to show levels of mastery by skill (TEKS). A student that "masters" the assessment would have a green score, "meets" would have a blue score, and "approaches" would have a purple score, making data viewing easier for the teacher. The "Assessment Bank" document also provides information about how teachers can respond to the individual needs of their students by creating custom "assessments on demand using content and items students have never seen before."
- Materials include assessment tools that yield data teachers can easily analyze and interpret through "Personalized Learning" plans in the "K12 Dynamic Science Design" under the Differentiation and Acceleration section. The "Personalized Learning" plans consider vertically aligned scaffolded content 1-2 grade levels below and create a comprehensive on grade level course by embedding the appropriate lower grade scaffolds and extension activities to support differentiation and acceleration.

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

- The materials provide ways to use the information gathered from assessment tools to plan instruction further. The color coding in the reports allows teachers to easily group students based on need. Based on this assessment data and best teaching practices, the teacher can group students within the LMS to reflect the teacher's in-class grouping. This allows teachers to differentiate student learning.
- The materials provide ways to use the information gathered from the assessment tools to help teachers when planning differentiated instruction. Formative assessments and vocabulary assessments are available for supporting standards from lower grades. The reports generated allow teachers to see how students scored on these assessments. The materials provide lesson guides for teachers to use with students who did not show mastery of the lower grade level TEKS.
- Assessment tools yield information for teachers to use when planning instruction, intervention, and extension. Teachers may utilize scaffolded TEKS from previous grade levels for student intervention.
- Assessment tools provide information for teachers to use when planning instruction, intervention, and extension.

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

- Materials provide student resources for teachers to respond to performance data. The program includes scaffolded lessons embedded with the relevant on-level TEKS. The materials include study guides, videos, eBooks, vocabulary practices, etc. These materials are available for all TEKS on the current grade level and for lower grade supporting TEKS. Students are assigned these materials by the teacher as needed. For example, in reporting category four, Organisms and Environments, teachers can use a 5th-grade level lesson, two 6th-grade level lessons, and three 7th-grade level lessons to help fill in any gaps students may have with the 8th-grade content to prepare them for the 8th grade Science STAAR.
- Materials do not provide teacher guidance for responding to student data. For example, no teacher guidance documents explain how teachers can use the data from a diagnostic assessment to plan small-group instruction to address gaps in learning. Also not found are supplemental teacher guidance documents to support teachers in developing action plans. While there are activities in the program to assign students when they have difficulty answering assessment questions, there is no guidance for the teacher on when students should complete them.
- The materials do not provide teacher guidance for responding to student data. For example, they do not provide guidance documents that explain how to use data to plan for small group instruction to address learning gaps or provide tables, markers, or icons to specify which activities teachers should assign to students who did not perform as expected on assessments.
- Materials provide a variety of resources and some teacher guidance on how to leverage different activities to respond to student data. For example, within the lesson guides for each TEKS, there are a variety of activities teachers can use with students. The lesson guide for Global Patterns of Air and Weather (TEKS 8.10B) has twelve activities before the evaluation step, including labs, a study guide, research, and a demonstration.

- Materials provide a variety of resources and some teacher guidance on how to leverage different activities to respond to student data. For example, there is no teacher guidance for responding to data. There are no suggestions for grouping, action plans for filling in the gaps, or suggested activities for when students are having difficulty.

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Indicator 6.3

Assessments are clear and easy to understand.

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

Partial Meets | Score 1/2

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

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

Evidence includes but is not limited to:

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

- Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. For example, there are two formative assessments for each TEKS. Formative Assessment 1 for 8.12A is aligned to the content and uses various question types (hot spot, multi-select, two-part, and multiple choice). The assessment is scientifically accurate, avoids bias, and is error-free. Assessments include items that are dual-coded with content TEKS and RTCs or SEPs.
- Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. For example, there are two formative assessments for each TEKS. Formative Assessment 1 for 8.6B is aligned to the content and uses various question types (3 multi-select, text entry, and multiple choice). The assessment is scientifically accurate, avoids bias, and is error-free. Assessments include items that are dual-coded with content TEKS and RTCs or SEPs.

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

- Assessment tools use clear pictures and graphics. An example includes a picture of a toy car with a mass labeled 0.2 kg. The picture also shows the amount of opposing forces applied to the car. Large arrows indicate the direction of forces so students can determine the acceleration and direction of the toy car.
- Assessments contain pictures and graphics that are developmentally appropriate. Teacher's Guides uses a color-coded world map to indicate warmer water temperatures on and near the equator, with water temperatures gradually cooling as they close in on the north and south

poles of the Earth. Students choose where storms are most likely to develop from four labeled areas on the map. No other labels on the map, such as continent or ocean names.

- Assessments use clear pictures and graphics. For example, question 10 of Formative Assessment 1 in 8.12B contains a photograph of lichens growing on a tree. The image has been taken very close to the tree so that the lichens are an obvious center of attention for the photograph. The background has also been blurred to keep the focus on the lichens. The photograph is in color, making the white and chartreuse lichens stand out from the dark brown of the tree's bark.
- Assessments contain pictures and graphics that are developmentally appropriate. For example, question 2 in Formative Assessment 2 for 8.8B contains a photograph taken with night vision goggles. The photograph is of a deer standing in a snowy clearing in a forest. Though the military uses night vision goggles, this photograph has a nonviolent context. Therefore, it is developmentally appropriate for an 8th grader.
- Assessment tools use clear pictures and graphics that are developmentally appropriate. For example, Formative Assessment 1 for 8.9A (Stars: Life Cycle and Classification) used developmentally appropriate pictures and graphics that do not provide any unnecessary details that would confuse or be too much for an 8th grader.
- Assessment tools use clear pictures and graphics that are developmentally appropriate. For example, Formative Assessment 1 for 8.12B (Ecological Succession) used developmentally appropriate pictures and graphics that do not provide any unnecessary details that would confuse or be too much for an 8th grader.

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

- Materials guide teachers to somewhat consistently and accurately administer assessment tools. Materials include a distinct section in the teacher's guide that informs the teacher in understanding the assessment items students will encounter. The lesson guides do not guide teachers on when to administer the formative assessments of the program. For example, the Lesson Guides list under Evaluation: Formative Assessment 1, TEKS Video, Vocabulary Review, and Formative Assessment 2.
    - The materials offer some guidance to teachers on when to administer assessments. The teacher guidance document for the Content Mastery module contains 33 slides. Slides 3 through 10 demonstrate how a teacher can access the lesson guides for TEKS and show what the lesson guides look like. The example lesson guide on slide 9 shows that the teacher will utilize Formative Assessments 1 and 2, the TEKS Video, and Vocabulary Review during the Evaluate portion of the lesson. Slides 11 through 20 show how to navigate to the study guides and E-Posters and contain examples of both. Slides 21-31 explain how to navigate to the Concept Mastery section and find Formative Assessments 1 and 2 and the TEKS Video and Vocabulary assessment. They contain examples of each type of assessment and the steps for the order in which they are to be given to students. For example, slide 24 says, "Step 1: Begin with Formative Assessment 1," and slide 28 states that students must score at least 80% on the vocabulary section for Formative Assessment 2 to be unlocked. Slide 30 indicates that Formative Assessment 2 is Step 4 in the Concept Mastery process.
- Materials include a Summit K12 Pacing Materials resource that outlines a section on assessments with suggestions for administration. The Assessments section states, "...Each district, school, and classroom has different assessment requirements, so our materials are built to provide flexibility to meet these needs. Each TEKS includes two online assessments, which may be given at any time during the unit." Materials are designed to be flexible and easily

incorporated into a district's scope and sequence and do not explicitly dictate when and how an assessment should be administered.

- The materials provide some guidance for teachers to consistently and accurately administer assessment tools. The Assessment Bank information on item types to support teacher understanding of scoring procedures within the program. The document includes slides with step-by-step arrows and images that show educators how to start the assessment tool. Even though the materials include general guidance on activating the assessment, the materials do not provide specific guidance to ensure consistent and accurate administration of the assessment tools. They lack support for the methods of administering the assessments and do not offer guidance on how to collect consistent and purposeful data.
- Materials include information about reports. For example, the materials state the types of reports in the program: Concept Boosters, Vocabulary boosters, Process Vocabulary, Usage Reports, etc. Reports are available by grade level in the top right of each course in which students are enrolled. While these reports provide data after students have completed an assessment, they do not provide guidance for consistent and accurate administration of the assessment tools.
- In online assessments, each student activity is accompanied by a teacher guide, rubric, or answer key that helps teachers understand how to administer and grade the activity. These provide opportunities for assessment of student learning and concept mastery outside traditional tests. Another example is the Phenomenon Sensemaking Guide. Students make sense of the phenomenon as they build an understanding of the science concepts, then create a final model and defend their explanations using a CER. Teachers use the CER rubric to score their writing.
- The materials include some information that supports the teacher's understanding of assessment tools and scoring procedures. For example, at the end of each quiz, an answer key is provided on the review page. Teachers can click on question 10 of an assessment and click "Finish Attempt...," then "Submit all and finish" to view the answers. Students see this screen once they have completed a quiz. Additionally, teachers can view a student's performance, along with the correct answers, on any online assessment. However, the materials do not provide detailed information to support the teacher’s understanding of scoring procedures within the program.

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

- The materials offer accommodations for assessments so that students with disabilities can demonstrate mastery of learning goals. The teacher guidance document for Accommodations, Accessibility, and Designated supports, found in the Teacher's Guide, explains the types of accommodations found on assessments. Slide 3 lists the Accessibility features as bilingual dictionaries, reading assistance for Short-Constructed Response Items, notepad, highlighter, zoom feature, bookmark questions, and answer eliminator for MC/MS items. Slides 4-9 show how students would access features on an assessment. Teachers may find information about student performance and reports in the help center.
- Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned with learning goals. For example, the Teacher's Guide section Teaching and Learning has a PowerPoint titled Differentiation and Acceleration; this shows the teacher how to assign available accommodations (digital calculator, content and language support, and text-to-speech).

Summit K12 Dynamic Science Grade 8

Indicator 7.1

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

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved mastery. In the Science 8th Grade Review section of the program website, the four reporting categories are options for review in Concept Boosters. The lessons span from 6th to 8th grade to achieve mastery. Each lesson has a Review Assessment 1, a TEKS Video Review, a Vocabulary Review, and a Review Assessment 2. For example, in reporting category three, Earth and Space, 6th- and 7th-grade lessons are offered to help students strengthen foundational knowledge. Lesson 6.11A, Impact of Resource Management on Global Issues, and lesson 7.11B, Ocean Systems and Human Activity, reinforce the background knowledge needed to fully understand the 8th-grade content in lesson 8.11B, Impact of Human Activity on Global Climate.
- In reporting category one, Matter and Energy, 6th- and 7th-grade lessons help students strengthen foundational knowledge. Lesson 6.13C, Variations within a Population, focuses on how variations can be advantageous or disadvantageous. This concept builds upon in lesson 7.13D, Natural and Artificial Selection, where students describe and give examples of how natural and artificial selection change the occurrence of traits in a population over generations. These lessons from prior grade levels help strengthen the knowledge gained in lesson 8.13C, Variations and Adaptations, where students describe how variations of traits within a population lead to structural, behavioral, and physiological adaptations that influence the likelihood of survival and reproductive success of a species over generations.
- Materials provide additional resources for targeted instruction to support students who have not yet achieved mastery. The Concept Mastery section has two formative assessments for every TEKS in a unit. The teacher can provide the first formative assessment after completing

the initial instruction. If students do not show mastery, teachers may assign videos and vocabulary lessons To target instruction for those who need additional help. This allows the teacher to check for mastery and then target instructional activities for students who did not master the topic.

- Materials ensure teachers can target instruction to develop precursor skills in two ways. First, the Content Mastery section has two formative assessments, a TEKS video, and a vocabulary activity for the supporting standards from a primary grade. For example, in Force, Motion, and Energy, 6.7B, 7.7D, 6.7D, 6.8C, and 5.8C are present. Secondly, if students need even further instruction, complete Lesson Guides for these supporting TEKS are found within each unit. These lessons provide complete instructional activities that a teacher may use for whole groups, small groups, tutorials, etc., for students at any level.

Materials provide enrichment activities for all levels of learners.

- Materials provide enrichment activities for all levels of learners. Materials provide extension opportunities within lessons. For example, in lesson 8.6D, Properties of Acids and Bases, student groups create a public service announcement to educate the public about the properties of acids and bases. Students identify the properties of acids and bases, differentiate between acid and base properties, and explain properties in basic terms for the general public to understand. Another example of an enrichment activity is found in lesson 8.10C Tropical Cyclones. Students create a simple model that provides evidence of the movement of tropical cyclones. Students explain how the interaction between the conditions of the air mass and the ocean currents creates changes in weather conditions.
- The materials include science videos and simulations broken down by TEKS. There are videos for grade-level TEKS, such as 8.8A, and supporting TEKS, such as 6.8C and 5.8C. The materials also include multiple simulations that can also be used for enrichment. For example, there are three pH Lab simulations for 8.6D. The Teacher's Guide embeds suggestions for engaging enrichment activities in each lesson.
- The Lesson Guide for every TEKS is an Apply and Extend section. In this section, teachers can use it for gifted and talented students or for those students who have already mastered the content. This section contains additional activities ranging from projects and lab design challenges to engineering projects that all further explore the science concepts covered in that lesson. For example, in the Lesson Guide for Atoms in Chemical Reactions, 8.6B, teachers have two choices of Apply and Extend activities - the Study Guide and a Hidden Message activity that can also be used as an escape room.

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. The lessons include recommendations for just-in-time scaffolds to develop productive perseverance in learning. For example, in the Lesson Guide for the engagement portion of lesson 8.8B, Applications of Electromagnetic Waves, teachers can use the guiding question prompts provided to keep students focused and thinking about the concepts demonstrated when showing an image of an x-ray. For example, “What do you notice about this image? Have you ever broken a bone? Have you ever had an X-ray? What did it feel like to have an X-ray taken? What do you wonder about X-rays? How are X-rays helpful? Are they ever harmful?”
- Lessons provide support and resources for students ready to accelerate their learning. The materials contain several components called Dynamic Science Student Engagement. The

components include TEKS videos and animations, interactive digital flashcards, digital avatars to track student progress, and student top 10 tables to compare their learning with the class, school, district, or state. Interactive learning activities, science labs, and engaging STEM career explorations exist. There is a document called "Summit K12 Questioning Guide" that includes question stems for four different levels.

- The materials provide general discussion questions to be used during an activity with all students. They prompt the teacher to monitor and ask students questions as the activity progresses. The materials provide support and resources for students ready to accelerate their learning. The materials offer a variety of student activities that can be assigned based on the student's mastery of scientific knowledge and skills. For example, videos, simulations, eBooks, study guides, virtual field trips, and career exploration opportunities can all be assigned to any student as needed.

Summit K12 Dynamic Science Grade 8

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.

- Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. Materials engage students in the mastery of the content through various developmentally appropriate instructional approaches. For example, lessons include classroom demonstrations. In lesson 8.6B, Atoms in Chemical Reactions, the teacher burns solutions of different metal compounds to show students the colors they produce when they burn in oxygen, a chemical reaction called combustion. The chemical formula for each solution is displayed, and students locate the names of the metal elements on the periodic table. For example, materials include opportunities for students to engage in collaborative or cooperative learning activities. In lesson 8.12C, Impact of Biodiversity on Stability of Ecosystems, students study an image of two environments to determine which environment has the greater biodiversity and why. Student pairs share their responses with the class.
- The materials include various developmentally appropriate instructional approaches to engage students. For example, most lessons include e-books, videos, and simulations to engage students. For 8.13A Functions of Organelles, there's a video that is 8:40 minutes long and two simulations called Animal Cell and Plant Cell. The materials include various instructional

approaches, Including demonstrations, lab investigations, independent, partner, group work, summarization, and graphic organizers. For example, the Science Lab Explorations document contains a list of 46 activities that include demonstrations, inquiry labs, models, discussions, and stations. The Graphic Organizers supplemental material includes the utilization of 20 different graphic organizers.

- There is a variety of instructional approaches within the 5E lesson model. In the lesson, Law of Conservation of Mass (8.6E), in the Engage section, there are Glow Sticks where students explore the mass before and after the chemical reaction. The lesson also includes a teacher model activity in Conservation of Mass in Chemical Equations, a hands-on lab in the Law of Conservation of Mass Investigation, and an inquiry lab where students Design an Investigation.

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

- Materials support flexible grouping (e.g., whole group, small group, partners, one-on-one). The activities in any given lesson state whether they are whole groups, student groups for investigations, partner groupings, or independent work. For example, in lesson 8.10B, Global Patterns of Air and Weather, students watch a video and examine images for a whole group discussion on forecasting weather. Next, students watch a teacher demonstration as a whole group. Next, student pairs collaborate to examine an article on how to read a weather map. Then, for an investigation on surface weather maps, the teacher forms six groups of students. The lesson concludes with extension activities that offer both independent and group work.
- The materials guide teachers on when to use specific grouping structures based on the needs of students. For example, the materials mention when lesson activities are whole groups, student groups, or partner work. The materials imply when students should work in groups, such as for a station lab or with partners for a reading activity. Activities and worksheets are provided that could be done independently, but they could also be done in partners or groups.
- In the lesson Tropical Cyclones (8.10C), there are a variety of grouping activities such as a whole group video over Hurricane Katrina followed by a partner graphic organizer activity, an individual activity on How Do Hurricanes Form, and finally, small group students will create a Mind Map. The materials do not guide teachers on when to use specific grouping structures based on the needs of students.

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

- Materials consistently support multiple types of practices, such as model, collaborative, and independent. Several lessons contain teacher demonstrations where the teacher models Appropriate laboratory practices. Lessons also contain opportunities for students to collaborate with their peers through discussions, conducting research, or investigations. Students have the opportunity for independent practice with the evaluations at the end of each lesson when they partake in formative assessments and vocabulary practice.
- The materials provide multiple types of practices. For example, the Lesson Guide for 8.10C, Tropical Cyclones, indicates that students will work collaboratively during the Engage, work through several guided activities such as How to do Hurricanes Form, and potentially independently on the Study Guide. The materials provide teacher guidance and structures for effectively implementing multiple types of practice. A clear purpose or goal is given for each activity within a lesson guide a clear purpose or intent is shown. For example, the Tree Rings and

Climate Activity states scientists find evidence of climate change in tree rings, temperature data, and precipitation data.

- Each e-book has a study guide and a reading guide. The comprehension strategy in the e-book Visible and Invisible Waves focuses on making connections. Materials consistently support multiple types of practices and provide guidance and structures to achieve effective implementation. For example, in the lesson Distance-Time Graphs (8.7B), the teacher models in the Engage section and Plates in Motion, collaborative in Amusement Park Stations, and independent and collaboratively in Shooting a Basketball.

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

- Materials represent a variety of communities in the images and information about people and places. For example, in the program website's Scientific and Engineering Practices Section, under the Investigate STEM careers category, real-life images of people in STEM careers represent people of various ethnicities, ages, and genders. For example, e-books in the differentiated science literacy section appropriately feature images primarily concerning scientific concepts. When an image contains a person or a place, a variety of each is displayed throughout the set of e-books to represent diverse communities.
- Images reflect the diversity of school communities and match the content. Characteristics vary in images to include race and ethnicity, skin tone, gender identity and expression, age, disability status, body size and shape, and hair texture. For example, the e-book cover image for Newton's 1st and 2nd Law of Motion is of a woman pushing an older man in a wheelchair. Pages 1 and 2 are labeled diagrams of a student being forced into an office chair. In the image are students of varying ethnicities, including Caucasian, African American, Hispanic, and Asian. Page 5 shows two students pushing a shopping cart of groceries - one is a Caucasian girl, and the other a Hispanic boy.
- In the video about Variation and Adaptations (8.13C), diversity includes but is not limited to organisms (snakes, turtles, birds, fish, onions, owls, beetles, dogs, fish, swans, eagles, penguins, rabbits, peacocks, tulips, squirrels, cats, bears, chipmunks, bats, spiders, trees, ducks), places (wetlands, forest, lakes, oceans, mountains, deserts, tundra), and people (Asian, Caucasian). For example, in e-books, a diversity of images is used. In The Hidden World of Cells (8.13A)e-book, the diversity of images includes but is not limited to cells (plant, animal) and people (male, female, African-American, Caucasian, Asian).

Summit K12 Dynamic Science Grade 8

Indicator 7.3

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

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

Partial Meets | Score 1/2

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

Materials include some 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.

- Materials include some guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. The materials provide linguistic accommodations for beginner Emergent Bilingual (EB) students. Inside the Science Literacy and Vocabulary Mastery section is a link to Multilingual Newcomer Lessons on 13 different topics covering all four reporting categories. The Lesson Plan document for each lesson provides detailed instructions for using the Newcomer lesson. They include an Activity Overview that explains whether the activity should be done individually, with partners, or in small groups. They have Word-Learning strategies, pronunciation practice, instructions for using the worksheets, and how to use the blue-level e-book. The e-books are supposed to come in color-coded reading levels. While the materials provide separate lessons for beginner or newcomer students, they do not offer this support for intermediate, advanced, or advanced high students.
- The materials reference the administrative code for the ELPS used in a specific activity. For example, in the lesson guide for 8.11B, Impacts of Human Activity on Global Climate, there is a set of activities called "Analyzing Graphs and Drawing Conclusion." ELPS 1.E.ii, 1.E.iii, 1.E.iv, 4. F.i, 4.F.ii, 5. B.i, and 5.B.ii provides support. However, the guidance provided to the teacher does not consistently assist with accommodating activities for the various levels of learners. For example, there is a document called "ELPS Implementation Guide;" however, it does not provide information for all levels. Specifically, in Expressing Ideas, ELPS 3.G.ii, the Suggested Activity section states, "For beginning students, brainstorming ideas for their teacher would be the final

step. Advanced students will discuss each idea to come up with one final solution." In Expressing Opinions, ELPS 3.G.i, the Suggested Activity section states, "Beginners can use simple responses to many different subjects, while advance students can dialogue only a few subjects." Consistent support for the various levels of English language proficiency is not included.

- Materials include some guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS. For example, there is a lesson guide in the Multilingual Newcomer Lesson section for category 4, Ecosystems. The teacher lesson plan provides a scaffolded lesson for ELLs with suggestions for activities, grouping, time, and ELPS alignment. There is an option to print multilingual versions of the worksheets and Vocabulary Boosters in 20 different languages. The teacher's lesson plan says, "Use the Word-Learning Strategies to introduce words from the Blue Level Student Book or e-book." E-books for all levels of learners are not provided in the materials.
- In the Teacher Resource, materials include a Science Cognates list under the Science Literacy-Vocabulary Mastery section. For example, in the section Science Cognates, there is a category for SEPs: Matter and Energy; Force, Motion, and Energy; Earth and Space; Organisms and Environments. Each category includes three sets that review pictures and language familiar to the category. The student can see and listen in Spanish, then see, hear, and speak (a record) in English. Materials state, "Spanish-English Science Cognates enable Emergent Bilingual Students and in particular 1st and 2nd Year Beginning level students to build confidence quickly."

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

- Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English. For example, the Science Literacy/Vocabulary Mastery section contains a resource called Science Cognates/English-Espanol. Within this resource are sets of cognates practice grouped in the reporting categories of SEPs, Matter and Energy, Force, Motion, Energy, Earth and Space, and Organisms and Environments. Students practice saying the cognate in a Spanish phrase and then again in an English phrase. For example, there is a lesson plan in the Multilingual Newcomer Lesson section for category 4, Ecosystems. The teacher lesson plan says, "For home language support of the Basic Vocabulary, refer to the Foundations eBook table of contents to print multilingual versions of the worksheets and to the Vocabulary Boosters Multilingual Edition for Newcomer vocabulary practice in 20 different languages." There are links to the word list, flashcards, and study guides with an answer key.
- In the Science Literacy/Vocabulary Mastery section is a resource called Multilingual Newcomer Lessons. Here, teachers can follow the ConceptLinks® Science Foundations lessons. These lessons support newcomer students, beginning-level English learners, and students with limited English proficiency. The program helps students develop reading, writing, speaking, listening, and thinking skills. The foundation skill lessons introduce and teach basic vocabulary and word-learning strategies and focus on building literacy, language, and concept comprehension. The pacing guide outlines an example of how the foundation lessons for each topic are organized into five or ten days of instruction at a recommended 20 minutes per day.
- The materials include homework in languages other than English. In the Teacher's Guide for any of the Multilingual Newcomer Lessons, there is a word list and study guide available in Spanish, Arabic, Burmese, Simplified Chinese, Traditional Chinese, Hmong, Korean, Nepali, Persian-Farsi, Portuguese, Somali, and Vietnamese. The Teacher's Resources includes a document that

explains how to use the Science Cognates activity with students. This document describes the purpose, examples, and how using cognates will benefit students on page 2. Pages 3-5 explain how to access the Science Cognates within the Science Literacy Vocabulary Mastery Materials. Page 6 lists the cognates for all four reporting categories for 6th-8th grade. The remaining pages show how the cognates activity looks for students.

Summit K12 Dynamic Science Grade 8

Indicator 7.4

Materials provide guidance on fostering connections between home and school.

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

Meets | Score 2/2

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

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

Evidence includes but is not limited to:

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

- Materials provide information to share with students and caregivers about the design of the program. For example, information is available to help students use the online course components in the “Student-Getting Started” tab under “Additional Resources” in the Teacher's Guide. This 32-page slide deck walks students through the design of the online program, critical features of the program, where to find specific features, and how to access all program components. The information may also be provided to caregivers to help them learn how to log in from home.
- The materials provide information to share with caregivers about the design of the program. The materials offer a 3-page letter for parents and caregivers that is available in both English and Spanish. Page 1 of the letter is a general explanation of the course. Page 2 explains how to access the materials from home. Page 3 demonstrates what students will see upon logging in and explains the four major modules students will likely work in from home.
- The course materials include information about the lessons' instructional design and course components. These documents provide insight into the program's design and may be shared with students and caregivers. Teachers can access and share the documents describing the 5E model under the “Course Design” section of the Teacher's Guide. Materials provide information to be shared with students and caregivers about the design of the program. For example, overviews of the Science and Engineering Process skills, Recurring Themes, and Concepts, including Phenomena, can be shared with students and caregivers.

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

- Materials provide resources and strategies for caregivers to help reinforce student learning and development. The program includes an English/Spanish program overview letter that can be sent home via print or online through e-mail or LMS. The letter briefly explains how to access the program and how to navigate to key features. Extension activities that involve caregivers include suggestions on how the caregiver can support the student's needs. The materials include Home-School Connection letters for each lesson. Each letter contains critical points of the lesson, conversation starters, at-home activities to reinforce or extend knowledge, essential vocabulary, and a picture talk.
- The materials provide website access with activities for reinforcing students' learning of scientific vocabulary. The online accessible materials contain a module called Concept Mastery. This module has a vocabulary activity for every 6th-grade TEKS and 5th-grade supporting TEKS. Additionally, inside the Science Literacy/Vocabulary Mastery module are Vocabulary Mastery practice lessons. The materials provide at-home activities for caregivers to help reinforce student learning and development. Inside the teacher resources is a "Home to School Connection" document. This resource contains one-page information sheets for each TEKS that can be sent to caregivers. These sheets help caregivers understand what their child is learning in the classroom. Each sheet contains the following sections - Key Points, Conversations (questions to start conversations with students at home), Activities (at-home activities to reinforce concepts), Vocabulary, and Picture Talk (a picture with a question). It should be noted that these Home to School Connection sheets are only available in English.
- There is a "Home-School Connection" for each TEKS. This one-pager includes vocabulary, a graphic, key points, activities, and questions to guide caregivers. Materials provide information to be shared with caregivers for how they can help reinforce student learning and development. For example, the program is web-based, so students and parents can access it at home or anywhere with a connection. Students and caregivers (as co-viewers) have access to vocabulary flashcards and all resources available online.

Materials include information to guide teacher communications with caregivers.

- For example, teacher guidance includes information on engaging caregivers as partners in learning and offers suggestions for establishing a relationship or inviting ongoing communication and partnership. Materials include guidance for engaging caregivers as partners; for example, Summit K12 provides Home-School Connection letters for each TEKS that can be shared with caregivers to help them reinforce learning and serve as partners. These letters include key points, conversation starters, activities, vocabulary, and a "picture talk" discussion.
- Materials include a "Parent/Guardian Letter" in the "Summit K12 Teacher's Guide" that provides information to guide teacher communications with caregivers. The instructions state, "The attached letter is an example of one that you may send home to the parents or caregivers of your students to introduce them to the [program] K12 Science resources. We suggest sending the letter below, as well as instructions for how to access the program from home, through the district's LMS or portal." In addition, the "Parent/Guardian Letter" provides information for teachers to share with caregivers, like "This online program is accessible from home and includes lesson videos, digital flashcards, study guides, animations, and assessments." Furthermore, the letter explains to caregivers how "students will most likely be assigned work in one of the following modules:

- Science Videos and Simulations – Lesson videos for all of the TEKS
- Concept Mastery – Lessons, assessments, vocabulary, and practice to help students master each TEKS during the year
- Science Literacy and Vocabulary Mastery – A TEKS-based nonfiction literacy and vocabulary resource to help students master Science vocabulary and concepts
- Scientific and Engineering Practices – Includes Science labs, field investigation videos, more advanced vocabulary flashcards, Science process skill lessons, and other inquiry-focused resources."

- The materials provide progress monitoring and reports based on student achievement within the Concept Mastery section of the course. Teachers can use these reports during parent conferences or send them home to inform families of their student's progress. Information about these reports is found in the Teacher's Guide. For example, teachers can download and print individual student reports for Concept Boosters and Vocabulary Boosters. To access individual student reports, the teacher must click on the student's name from the drop-down list on the main report page. The Concept Mastery report gives the score the student made for each activity per TEKS. The Vocabulary Mastery report shows the student's score on the vocabulary mastery activity and its organization design by TEKS. The materials guide the teacher on how to access the "Reports and Dashboards." There is also a link to a help center if teachers are struggling to locate the information. Materials include information to guide teacher communications with caregivers. The materials include reports that can be sent home.

Summit K12 Dynamic Science Grade 8

Indicator 8.1

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

1	Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built in the course materials.	M
2	Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts.	M
3	Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials include year-long plans with some practice and review opportunities that support instruction.

Materials are accompanied by a TEKS-aligned scope and sequence outlining the order in which knowledge and skills are taught and built into the course materials. Materials provide teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts. Materials provide some review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.

Evidence includes but is not limited to:

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

- The materials include year-long plans aligned with grade-level TEKS. For example, a year-long scope and sequence is found in the Teacher's Guide, included in the Teacher Resources section. The scope and sequence shows clear English Language Proficiency Standards (ELPS) alignment within the unit and lesson progression. There are dual language resources in the units.
- There are "Scope and Sequence and Pacing Guides within the Teacher Resources." These guides provide a Year at a Glance document indicating the number of days allotted for each Reporting Category and the number of Texas Essential Knowledge and Skills covered in that time frame. Page 6 then gives the scope and sequence for the entire year. This further breaks the reporting categories into units, then TEKS covered within a unit, and the time allotted for each TEKS and the entire unit. Page 8 contains a pacing guide that breaks the reporting categories down into the TEKS, provides a brief description of the concepts within the TEKS, and provides an estimated amount of time needed to cover the TEKS adequately.
- The Scope and Sequence and Pacing Guides provide an alignment or correlation to the English Language Proficiency Standards. The Teacher Resources page has a document titled TEKS/SEP Alignment. In the lesson plans for TEKS, the ELPS are given for different activities and the entire lesson.
- Inside the unit for each reporting category, on page 3, there is a TEKS scaffold document that shows the vertical alignment that offers alignment from 6th to 7th grade. Lessons are provided for each supporting TEKS to allow for reteaching and review. Inside the Lesson Guide for a

specific TEKS, the vertical alignment from the 7th-grade TEKS to related 6th- or 8th-grade TEKS is shown in the Teach and Discuss section.

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

- The materials provide teacher guidance for the concepts, RTCs, and SEPs. The Phenomenon Teacher Guide has specific questions in the Facilitating Sensemaking section that make the connections to RTCs and are clearly labeled as such. For example, in 8.7A Phenomenon Teacher Guide, Exploring Bungee Launches in Space, the Facilitating Sensemaking tells the teacher to instruct students to record their initial observations and questions in part 1 of their Phenomena Sensemaking Guide. Students refer to the Scientific Thinking Guide to help them extend their observations and thinking and make broader connections. To drive student thinking, the teacher questions include RTC 8.5B - What do you notice about the effect of the bungee on the two different objects? How does ___ affect ___ ? Is there a cause-and-effect relationship? Could the object's size affect its speed? and from RTC 8.5C - What do you notice when the sizes of objects are changed? How does increasing/decreasing the ___ effect ___ if ___ is kept the same? What would happen if you increased/decreased the size of the objects but kept the distance the bungee was pulled back the same?
- The materials provide teacher guidance in understanding how activities and experiences connect concepts and SEPs. For example, the materials include an 8th-grade TEKS-SEPs-RTCs Crosswalk, providing teachers with a glance at the connections between the TEKS, Science and Engineering Practices, and Recurring Themes and Concepts. For example, in Category 3 of the TEKS Lesson Guides and Instructional Resources, a lesson on Newton's Laws of Motion begins with the teacher facilitating student engagement by simulating the results of a head-on collision by sending toy cars of different masses down a ramp. Students discuss other examples of how the laws of motion have improved their lives. For instance, SEPs and RTCs are notated within each lesson for teacher reference. The activity provides Engineering Design Process Steps. Teachers can reference the engineering design process steps to allow students to follow. Materials include students defining the criteria and constraints of the design problem by observing the materials permitted and how the car will roll down a hill without breaking the egg.

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

- The materials include some intentional practice and spiraling of previously taught knowledge and skills from earlier lessons/grade levels and the current lesson's science knowledge and skills. For example, the Lesson Guide features a vertical alignment area where teachers view the previous grade level skills and the skills taught in future grade levels. The Lesson Guides and Instructional Resources include scaffolded lessons that offer related concepts from previous grade levels. For example, in Category 3, Earth and Space, below a grade-level lesson on Energy Systems, Weather, and Climate, there is a 6th-grade lesson on Biosphere, Hydrosphere, Atmosphere, and Geosphere, as well as a 5th-grade lesson titled Explain the Water Cycle.
- Study Guides are provided for each unit, allowing students to review concepts taught within one specific lesson. The materials offer activities while learning the new TEKS that enable students to practice what they have just learned, such as by working with a card sort or creating a diagram of essential concepts/information. It says, "The Scope and Sequence overall design is to be flexible, with time built for concept and spiral review." However, materials are given to review

or spiral content over the year effectively. Each activity and Study Guide focused solely on the new concepts taught within that lesson. Teachers can reference review materials for STAAR, but these materials are locked for most of the school year, according to the Navigation Video. The STAAR materials provide review lessons on all TEKS tested from 6th, 7th, and 8th grade that differ from lessons previously offered on the same TEKS.

- Lesson plans with Study Guides are included for scaffolded concepts from 6th and 7th grade. These lessons provide review and practice with those supporting TEKS to ensure student success with foundational concepts and skills. In 6th grade, students described the historical development of cell theory and explained how organisms are composed of one or more cells, which come from pre-existing cells and are the basic unit of structure and function (6.13A). In biology, students will relate the roles of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids, to the structure and function of a cell (B.5A). New lesson plans with different Study Guides provided in the STAAR Review materials. These lesson plans cover all TEKS from 6th through 8th grade.

Summit K12 Dynamic Science Grade 8

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

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

Partial Meets| Score 1/2

The materials partially meet the criteria for this indicator. Materials include some 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 some standard correlations, including cross-content standards, that explain the standards within the context of the grade level. Materials include a comprehensive list of all equipment and supplies needed to support instructional activities. Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.

Evidence includes but is not limited to:

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

- Materials provide embedded technology to support and enhance student learning and classroom implementation support for teachers and administrators. For example, a Support tab is provided on the home page for teachers and administrators to use for technical issues with the program, such as student enrollment and administrator access to reports. For example, in the Teacher Resources section, a Teacher is Getting Started Guide shows teachers how to get familiar with the program setup through visuals that show the teacher exactly where to go on the site to find what they need. The Getting Started Guide includes where to find the Scope and Sequence and Pacing Guides, Concept Mastery, Online Course Site Map, Course Philosophy, and TEKS Content Mastery Lesson Guides.
- Inside the Science Literacy/Vocabulary Mastery section are three areas: Multilingual Newcomer Lessons, Differentiated Science Literacy, and Science Cognates English/Spanish. Inside the Multilingual Newcomer Lesson area is a Science Foundations Newcomer Lesson Guide. Inside are Lesson Guides for each curriculum unit, such as Energy, Animals, and Plants. The Lesson Guides contain Pacing Guides, Lesson Materials, and resources in multiple languages. The

Differentiated Science Literacy area has a Science Literacy Teacher's Guide. Inside the guide is a list table containing the science TEKS, a comprehension strategy, guided reading, a study guide, and an answer key. The Science Cognates area may be accessed through the Dynamic Science Teacher's Guide by clicking on the Science Cognates link.

- The Dynamic Science Teacher's Guide contains links explaining each curriculum product. The guide includes notes on structures and functions for each category. In addition, there is a list of scaffolded questions and answers. It also provides lab and research activities. For example, clicking on the link for Videos opens a new tab containing all the information on the Videos and Simulations in the curriculum. Information is included on how to access the videos and simulations in multiple ways, a sample data table from a reporting category listing the videos by TEKS and topic, and screenshots of how the videos look. Additionally, resources include helpful hints such as using closed captioning or adjusting the playing speed of the video. The same level of detailed information is then presented for the simulations. For example, Lesson Guide 8.12B, Ecological Succession, provides teacher guidance and recommendations for using materials, enrichment activities, and scaffolds to support student learning. The guide includes detailed notes on materials and a 5E lesson model. In addition, there is a list of scaffolded questions and answers. It also provides enrichment activities and applies an extension section.

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

- Grade 8 materials provide standard correlations within the content area of Science. Specific TEKS can be found in the Scope and Sequence and Pacing Guides as well as in each lesson. The standard statement is at the top of each lesson. For example, in Category 4, Organisms and Environments, a lesson titled “Function of Genes,” the lesson header notes the lesson correlates with 8.13B and relates to the student's expectation of describing the function of genes within chromosomes in determining inherited traits of offspring. Teachers can access the specific TEKS wording in an additional document under the TEA Resources located in the Teacher’s Guide.
- Each Lesson Guide contains the TEKS for vertical alignment as well as a list of all English Language Proficiency Standards, Science and Engineering Practices, and Recurring Themes and Concepts. For example, in the Lesson Guide for 8.8A Characteristics of Waves, page 2 shows the vertical alignment to 6th grade and high school Physics and IPC courses. Pages 6-8 list each of the ELPS, SEPs, and RTCs for the 8.8A lesson. Materials for grade 8 do not include a “Connect to…” reference to engage students in cross-content standards; however, materials sometimes reference a literacy activity to support cross-content standards. Specifically, in the Lesson Guide for 8.11B, Impact of Human Activity on Global Climate, the gear icon lists a “Literacy Connection: Human Activities and the Global Climate.” Students read, research, and describe different evidence supporting how human activities are influencing the climate. The purpose states, “Students will read and share scientific evidence about how human activities influence the climate in a jigsaw activity.” Lesson guides do not consistently include literary connections or other content connections.
- In the Differentiated Science Literacy section of the Science Literacy Vocabulary Master, the Science Literacy Teacher’s Guides includes guided reading passages with objects for language, literacy, and science content. For example, the resource lists the title of the passages, the comprehension strategy, and the eBook. In the eBook Acids, Bases, and pH, the comprehension strategy is to synthesize. The Science Literacy Teacher Guide gives the literacy objective as “Read and analyze nonfiction texts. Interpret diagrams. Use text features to synthesize.” The science content objective states, “Understand that acids and bases are compounds with special

properties. Understand that the pH scale is used to measure the strength of acids and bases.". While there are reading passages within the curriculum, there is no explicit correlation of cross-curricular concepts from other content subjects listed. For example, there is no direct mention of other content connections or concepts, i.e., math or history within the curriculum.

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

- Materials include a comprehensive list of all equipment and supplies, including perishables, needed to support instructional activities. The materials contain a list of equipment and supplies necessary for a particular lesson, such as a lesson on 8.11C, The Carbon Cycle, for teachers to conduct the Photosynthesis and Respiration Lab.
- The Teacher's Guide page contains a comprehensive list of all equipment and supplies needed for the entire program. Inside each Lesson Guide is a comprehensive materials list that contains all the materials needed for each activity within the lesson. For example, in the Lesson Guide for 8.8A, Waver, the Materials List is linked on the first page in the resource section. Clicking on the link opens a two-page document that lists the materials needed for an engagement, four Teach and Discuss, and three Apply and Extend activities.
- On the Dynamic Science Teacher Resources page in the Science and Engineering Practices section, Material Lists and Inquiry Kits can be accessible on the materials list within each Lesson Guide. For example, the Science Lab Investigations list shows an investigation lab over 8.11A, The Greenhouse Effect. In the Lesson Guide for 8.11A, the Materials List shows all the supplies needed for the Greenhouse Effect Investigation.

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

- Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations. The materials provide lab safety guidance during lesson 8.7A, where students calculate and analyze how the acceleration of an object is dependent upon the net force acting on the object and the mass of the object. Students conducting the investigation of Newton's Second Law of Motion with the Marshmallow Shooter Lab must wear safety goggles during the lab. The materials provide a Science Safety Contract that students complete under the guidance of their parents. Inside the Science and Engineering is a Skills Companion for 8.1C, D Science Safety, and Tools. Clicking on the link to the Skills Companion opens sixteen PowerPoint slides that comprehensively review science lab equipment, the proper usage of certain items like fire extinguishers and showers (slides 3 and 4), as well as safety practices for a wide variety of lab situations (slides 9 -12) and field investigations (slide 14). The Lesson Guides contain links to Teacher's Guides for lab investigations and student inquiry activities. These Teacher's Guides have the safety information needed for an essential lab. For example, the Photosynthesis and Respiration Teacher's Guide lists the materials required for the lab. "Safety goggles, aprons, and gloves" are on the list.

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Indicator 8.3

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

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

Meets | Score 2/2

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

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

- Summit K12 has developed an optional year-long scope and sequence for schools and districts who wish to follow a set lesson progression that ensures all TEKS are covered within one school year. Within this framework, all grade-level TEKS have been organized into units of study with suggested time allotments for each TEKS. Teachers and administrators should adjust the instructional timeline according to student data and classroom needs. Materials provide a comprehensive timeline and framework based on state standards and serve as an optional resource that teachers and administrators may use in addition to or in support of instruction. Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities. The materials contain a Pacing Guide with suggested days needed to teach the content in each reporting category and each TEKS. For example, in Reporting Category 4, Unit 9, the total recommended days for the entire unit is 21; this categorizes into the time needed to teach the individual standards: 8.13C, Variations and Adaptations, 7 days; 8.12A, Disruptions of Energy Transfer in Food Webs, 5 days; 8.12B, Ecological Succession, 5 days; and 8.12C, Impact of Biodiversity on Stability of Ecosystems, 4 days.
- Another example is the suggested time frame for the components of a lesson. For example, in a lesson for 8.6C, Behavior of Water, the in-depth Pacing Guide breaks down the elements of Key Concepts and gives the time frame for each: TEKS Video (15 minutes), Investigation: Penny For Your Drops (30 minutes), Investigation: Water's Tension (30 minutes), Lab: Capillary Action (1 day), and Behavior of Water Jigsaw (1 day).

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

- Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression, including time for testing and STAAR preparation. The instructional materials provided to the teacher indicate ways that the teacher may adjust to meet the needs of the students without disrupting the developmental progression. The Pacing Guide provided 150 days of instruction instead of 180 days. Within a unit, the teacher will find scaffolded lessons from previously taught TEKS in lower grades and extension activities. Previously taught TEKS review within the natural progression.
- Materials guide strategic implementation without disrupting the sequence of content taught in a specific order following a developmental progression. The materials were written specifically with the 8th-grade TEKS in mind. For example, 8.13C, Variations and Adaptations, is taught before 8.12A, Disruptions of Energy Transfer in Food Webs, since the two concepts are highly related.
- The materials purposely group modules with similar recurring themes and ideas, making it easier for students to connect scientific knowledge. For example, page 8 of the Pacing Guide indicates that the unit's creativity centers around the Reporting Categories; this places all of the TEKS with similar and connected concepts together. Reporting Category 1 has 8.6 A, B, C, D, and E, which are TEKS over matter and energy. 8.7A and B and 8.8A and B are in different units because they are on Force, Motion, and Energy.

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

- Materials designated for the course are flexible and allow students to complete in one school year. For example, page 4 of the scope and sequence states that teachers and administrators should adjust the instructional timeline according to student data and classroom needs.
- On page 3 of the Pacing Materials, there is a Year at a Glance data table. This data shows that 160 days of instructional material have been allotted to complete all of the Texas Essential Knowledge and Skills for grade 8. This was intended to account for the beginning of year logistics, STAAR review, district and state testing, field trips, or any other interruptions to the daily cycle of instruction. Materials allow teachers to adjust according to student assessment data and district instructional priorities. Page 6 provides a complete scope and sequence, breaking the year into 9 units. The TEKS for all 9 units are listed to show that all required TEKS will be completed within the year.
- The materials design is to be flexible. Page 7 says that the Pacing Guide "can be adapted for teaching the Texas Essential Knowledge and Skills TEKS in any preferred order or according to a district-provided scope and sequence. The Pacing Guide is arranged by reporting category and includes suggested instructional time for each TEKS, but the actual order of instruction is flexible and should adjust according to student needs and district priorities." Thus the materials provide the flexibility needed by teachers and districts.

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Indicator 9.1

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The digital materials include appropriate white space and an overall design that does not distract from student learning. For example, student materials are appropriately designed to support student learning. For example, the student study guides that accompany each lesson are arranged in a structured layout that remains the same so students become familiar with and know what to expect as they work within them. Students can easily find the content vocabulary relevant to the current lesson at the beginning of the study guide. The middle of the study guide goes along with a hands-on activity of the corresponding lesson. Usually, this section features some sort of graphic. The graphics displayed are recognized and labeled. Also, the activity sections frequently feature a table where students record data from whatever investigation they are conducting. Plenty of space is given in the tables for students to write or draw their data. The study guides conclude with reflection questions. Students are given several lines to answer, which is beneficial when they need to use evidence to support their claims.
- Teacher guidance materials are appropriately designed with precise, designated places for important information. Teacher's guides are designed so that teachers can locate crucial information quickly for planning and implementation. Every lesson has a guide that follows the same format. First, the lesson header contains the title and the related TEKS code. Then, the student standard is written in an objective statement beginning with "students will." The core vocabulary is in a shaded box at the top of the first page. Under this, in another shaded box, is a list of the resources needed for the lesson. The next section, "Engage, " is the lesson opener, where the teacher engages the students in the topic and establishes relevance. The next section, "Teach and Discuss," contains a vertical alignment statement, the key concepts with expanded explanations, activity explanations, links, and misconceptions. The next section, "Apply and Extend," contains teacher directions for activities such as completing the study guide

and more hands-on enrichment activities. The final section, “Evaluate,” reminds the teacher of the assessment process contained in the program for students to access online.

- The digital materials include an appropriate amount of white space and an overall design that does not distract from student learning. For example, e-books are well formatted with clear and prominent titles, headings, and subheadings. There is an appropriate amount of white space surrounding images in the e-books. The e-books contain tools students can use to annotate text, including a highlighter and sticky notes.
- The teacher guidance materials are appropriately designed with clear, designated places for important information. The lesson guide is designed so teachers can locate information easily for planning and implementation. Each lesson guide begins with the TEKS written out, a list of core vocabulary covered within the TEKS, and a list of resources. Then, the lesson guide moves through the same four sections - Engage, Teach and Discuss, Apply and Extend, and Evaluate. Each section contains the activities and information the teacher needs, including the links to documents and a list of the SEPs, RTCs, and ELPS utilized in each activity. The lesson guides conclude with the SEPs, RTCs, and ELPS written out to assist with teacher understanding and planning.
- Materials include an appropriate amount of white space and a design that supports and does not distract from student learning. For example, each TEKS lesson guide provides a clear, organized, logical main subject title. When students use the read-aloud option, the word being said is highlighted so that students can read along with the voice.
- Materials include an appropriate amount of white space and a design that supports and does not distract from student learning. For example, Teacher's Guides provide links to ancillary material. There are color-coded callout boxes for activities and different colored fonts for important information.

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

- The materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, each lesson has a corresponding e-poster with graphics of key concepts and simple, clear explanations that are grade-level appropriate and not overly wordy. The graphics stay focused on the scientific concepts and do not unnecessarily place graphics of possible distractions. The e-posters also contain the key vocabulary of the lesson. The e-posters are also available in an interactive version where the teacher can enlarge the graphics for a better view.
- Another example includes the e-books included in the program. The short books contain concise, focused information on the featured student standard. The graphics are large, colorful, and highly related to the concepts and ideas of the text. The e-books follow the same format. After the title page, the introductory page displays the key vocabulary in the book's text. Also, this page helps students with reading strategies and lists a purpose for reading. The body of the book is a few pages of information with graphics; the number of pages depends on the complexity of the concept. The penultimate page is where the student engages in a reinforcement of the material read as well as fundamental reading strategies.
- The materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. The materials include vocabulary cards with clear and authentic images and graphics to define and support the new words students are learning. The vocabulary cards are located in the Science Literacy and Vocabulary Mastery module. The images on the cards are grade-appropriate and free of visual distractions.

- The materials include age-appropriate pictures and graphics to support student learning and engagement. For example, a picture of a cell used to identify the cell membrane does not contain labels for Golgi bodies, endoplasmic reticulum, etc., and students in 8th grade are only expected to know specific organelles.
- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, the Concept Mastery section has a vocabulary section that provides graphics with accurate labels with an age-appropriate amount of detail.
- Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. For example, within the e-posters and e-books, numerous graphics contain accurate labels with an age-appropriate amount of detail.

Materials include digital components that are free of technical errors.

- The materials include digital components free of technical errors. For example, the vocabulary mastery cards are free from errors in the graphics and definitions of the terms. The cards are also free from spelling and grammatical errors.
- Another example of the materials being free from technical errors includes the Science Videos. The videos are relevant to their corresponding lessons and contain correct information in both visual and text displays.
- The materials include digital components free of technical errors. The materials have science videos in the Science Videos and Simulations module. The videos for each TEKS are free of technical errors.
- The materials include digital components free of technical errors. The materials contain e-books for each TEKS. The e-books are located in the Science Literacy and Vocabulary Mastery module in the Differentiated Science Literacy section. The e-books are free of technical errors.
- Materials include digital components that are free of technical errors. For example, lesson guides for each TEKS are free of spelling, grammar, and punctuation errors. The teach and discuss sections are free of inaccurate content.
- Materials include digital components that are free of technical errors. For example, answer keys are free of spelling, grammar, and punctuation errors. They are free of wrong answers.

Summit K12 Dynamic Science Grade 8

Indicator 9.2

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

1	Materials integrate digital technology and tools that support student learning and engagement.	Yes
2	Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content.	Yes
3	Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.	No
4	Materials integrate digital technology that is compatible with a variety of learning management systems.	Yes

Not Scored

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

Materials integrate digital technology and tools that support student learning and engagement. Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content. Materials integrate some 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, digital technology and tools enhance student learning through such features as learning games, interactives, simulations, and online assessments. The materials include TEKS videos and animations, interactive digital flashcards, digital avatars to track student progress, student top 10 tables to compete with class, school, district, or state, and engaging STEM career explorations. The embedded technology within materials supports the print and does not replace it. Students use the digital technology available and printed material, such as the study guide and e-books.
- The materials integrate digital technology and tools that support student learning and engagement. The materials include e-books. The e-books contain embedded tools such as a pen, sticky note, highlighter, and zoom function. These tools are accessed on the left side of the screen while an e-book is open.
- The materials integrate digital technology and tools that support student learning and engagement. The materials include science videos for each TEKS, both on and below grade levels, supporting TEKS. For example, the Science Videos module for Matter and Energy contains five videos for 8th-grade TEKS and three for 6th and 7th-grade TEKS.

- Materials integrate digital technology and tools that support student learning and engagement. For example, online Formative Assessments allow students to highlight and take notes; it also offers Text-to-Speech that the teacher can assign.
- Materials integrate digital technology and tools that support student learning and engagement. For example, a variety of Simulations are available by category, 8th grade has 17 simulations.

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

- The materials integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. Materials provide interactive simulations and models for students to explore scientific and engineering practices in a virtual environment. Students have access to PhET Simulations in many lessons throughout the course.
- The materials allow students to obtain information using digital tools. The materials include virtual simulations where students obtain information on various topics. The Science Videos and Simulations module has a section specifically for simulations. This section contains simulations for all four reporting categories, totaling 17 simulations.
- The materials allow students to obtain information using digital tools. The Concept Mastery module includes a TEKS video for each TEKS on grade level and supporting TEKS from lower grades. For example, the Force, Motion, and Energy section contains four videos for 8th-grade TEKS and five for 5th-, 6th-, and 7th-grade TEKS.
- Materials integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. For example, graphic organizer templates are available and suggested in different assignments. These can be opened with Kami, allowing highlighting, text boxes, drawings, and shapes to be added. These can be downloaded and saved to Google Drive or OneDrive. Graphic Organizers can be used with content, SEPs, and/or RTCs.
- Materials integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. Simulations can be used with content, SEPs, and/or RTCs.

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

- The materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. For example, the materials do not integrate digital technology that supports student-to-student collaboration. The materials do not integrate digital technology that supports teacher-to-student collaboration.
- The materials do not integrate digital technology that supports student-to-student collaboration. The materials do not provide a forum to post class discussions or provide video conferencing, etc. While the Student Engagement documents indicate that students can compete for top placement in the school, district, or class, they compete individually as part of their progress monitoring, not collaboratively in teams or as partners.
- The materials do not integrate digital technology that supports teacher-to-student collaboration. The materials do not offer teachers a platform to virtually conference or collaborate with students.

- Materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. For example, “Students at each grade level can strive to be on one of several top 10 tables at the Class, School, District, and State levels.” Four top 10 categories are based on points: Concept Mastery, Vocabulary Mastery, Science Process Skills, and Science Literacy Points. However, students compete individually and do not get to work in teams or pairs.
- Materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. For example, in Science Cognates, students can listen to new science vocabulary in Spanish/English and then record themselves speaking in English. However, it is unclear if or how the teacher can provide feedback, and this is only available to ELL students and not all students.

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

- The program is fully web-based. The digital materials are accessible and compatible with multiple operating systems and devices. For example, within the support section, in a technical specifications article, a statement declares the materials work on all major platforms, such as iPads, laptops, PCs, MacBooks, and Chromebooks. Worksheets that go with specific labs and activities are downloadable and printable.
- The materials are accessible and compatible with all operating systems and devices. The Parent-Guardian Welcome Letter states that students should be able to access the program from any device with an internet connection. The materials could be accessed through a laptop and desktop computer. Accessing it from an iPhone allowed the user to view the modules.
- Materials integrate digital technology that is compatible with a variety of learning management systems. For example, the Teacher Getting Started document claims that We support access to all major district LMS and SIS platforms through one of the SSO solutions, allowing students to simply click on the Summit K12 icon to immediately access our course. It also says, “We support all major SSO tools like Clever, Classlink, Rapid Identity, and others.”
- Materials integrate digital technology that is compatible with a variety of learning management systems. For example, the Teacher Getting Started document claims that Our support center also provides step-by-step guidance if you would like to download the iOS App from the App Store directly onto your iPads. SummitK12 can be accessed on the website on an Android phone.

Summit K12 Dynamic Science Grade 8

Indicator 9.3

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

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

Not Scored

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

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

Evidence includes but is not limited to:

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

- The digital technology and online components are aligned with the grade-level scope and approach to science knowledge and skills progression. For example, materials provide information that identifies how online and digital components align with grade-level science knowledge and skills in the materials' scope and sequence and each lesson's header. The materials provide related TEKS and ELPS for online and digital components within the Teacher's Guide.
- Each digital activity specifies the TEKS that it correlates to. TEKS and topic list the simulation. All videos are listed by reporting category and TEKS, and the teacher's e-book guides specify the science TEKS and the RLA TEKS.
- The digital technology and online components are developmentally appropriate for the grade level. For example, videos contained in the Science Videos section are of a length that is developmentally appropriate for 8th graders. In the Matter and Energy videos, the longest video was 18:50 minutes, and the shortest was 5:18 minutes, which is well within the attention span of an 8th-grade student.
- Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression. For example, in the lesson guide for each TEKS, there is a list of applicable ELPS, RTCs, and SEPs under each activity.

- Other examples include a Teacher's Guide 1-pager with a link to the 5E Lesson Model; this explains the 5E lesson model and its rationale, including digital technology such as Simulations. There is also a link to a scope and sequence; this provides a timeframe for each year, unit, TEKS, and lesson. The TEKS lesson frame breaks down how much time to spend on different activities, including digital technology.

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

- The materials provide teacher guidance for using embedded technology to support and enhance student learning. For example, the materials support teachers in integrating technology within the program. Materials provide clear instructions and tutorials within the teacher platform on how to use the embedded technology. Teachers can access directions on using the embedded technology using the Getting Started Guide in the Dynamic Teacher's Guide or the Support link at the top of the home page.
- The materials support teachers to integrate the technology within the program successfully. The materials include a Help Center that includes links to information such as Online Tools on Summit K12, how to reset student passwords if there's a login error, troubleshooting audio recording quality issues, etc.
- The materials provide teacher guidance for digital and online assessment tools inside the guidance document for Concept Mastery. This document is located within the teacher resources and walks teachers through all types of assessments with guidance on locating them, examples of what they look like, and the order in which they should be given.
- Materials provide teacher guidance for using embedded technology to support and enhance student learning. For example, the Teacher's Guide 1-pager has a link to Teacher Getting Started. It claims that there are Teacher Training Courses available online. Another Teacher's Guide 1-pager has links to explanations, including Student Getting Started and Customer Support.

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 supporting student engagement with digital technology and online components. A general letter is available that briefly describes how to access the program. Teachers and administrators are encouraged to add anything to the letter to enhance parent/caregiver knowledge of the materials.
- Additionally, clicking on the Support link opens the Help Center. Inside the Help Center is a section called "Using Summit K12-Students." Parents can access this section to find information to help students with online components. The information is available in both English and Spanish.
- Materials are available to parents and caregivers to support student engagement with digital technology and online components. For example, a letter is provided in the Teacher's Guide 1-pager under Additional Resources. The letter provides an overview of the program and how to log in; it is available in English and Spanish. There also are Home-to-School Connection letters for each TEKS. The letter identifies key points, activities, conversations, vocabulary, and pictures. A reminder at the top of each letter says, "Remember to log in to Summit K12 to view TEKS videos, quizzes, vocabulary boosters, and more!"