Academic Content

Instructional Materials Evaluation Tool

(IMET) for Alignment in Science Grades K-12 Full Curriculum

Strong science instruction requires that students:

- Apply content knowledge to explain real world phenomena and to design solutions,
- Investigate, evaluate, and reason scientifically, and
- Connect ideas across disciplines.

Title: **Smithsonian Science for the Classroom**

Grade/Course: **K**

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Overall Rating: **Tier 1, Exemplifies quality**

Tier 1, Tier 2, Tier 3 Elements of this review:

STRONG	WEAK
1. Three-dimensional Learning (Non-Negotiable)	
2. Phenomenon-Based Instruction (Non-Negotiable)	
3. Alignment and Accuracy (Non-Negotiable)	
4. Disciplinary Literacy (Non-Negotiable)	
5. Learning Progressions	
6. Scaffolding and Support	
7. Usability	
8. Assessment	

To evaluate instructional materials for alignment with the standards and determine tiered rating, begin with **Section I: Non-Negotiable Criteria**.

- Review the **required**[1] Indicators of Superior Quality for each **Non-Negotiable** criterion.
- If there is a "Yes" for all **required** Indicators of Superior Quality, materials receive a "Yes" for that **Non-Negotiable** criterion.
- If there is a "No" for any of the **required** Indicators of Superior Quality, materials receive a "No" for that **Non-Negotiable** criterion.
- Materials must meet **Non-Negotiable** Criteria 1 and 2 for the review to continue to **Non-Negotiable** Criteria 3 and 4. Materials must meet all of the **Non-Negotiable** Criteria 1-4 in order for the review to continue to Section II.
- If materials receive a "No" for any **Non-Negotiable** criterion, a rating of Tier 3 is assigned, and the review does not continue.

If all Non-Negotiable Criteria are met, then continue to **Section II: Additional Criteria of Superior Quality**.

- Review the **required** Indicators of Superior Quality for each criterion.
- If there is a "Yes" for all **required** Indicators of Superior Quality, then the materials receive a "Yes" for the additional criteria.
- If there is a "No" for any **required** Indicator of Superior Quality, then the materials receive a "No" for the additional criteria.

Tier 1 ratings receive a "Yes" for all Non-Negotiable Criteria and a "Yes" for each of the Additional Criteria of Superior Quality.

Tier 2 ratings receive a "Yes" for all Non-Negotiable Criteria, but at least one "No" for the Additional Criteria of Superior Quality.

Tier 3 ratings receive a "No" for at least one of the Non-Negotiable Criteria.

[1] **Required Indicators of Superior Quality** are labeled "**Required**" and shaded light orange. Remaining indicators that are shaded white are included to provide additional information to aid in material selection and do not affect tiered rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA OF SUPERIOR QUALITY Materials must meet Non-Negotiable Criteria 1 and 2 for the review to continue to Non-Negotiable Criteria 3 and 4. Materials must meet all of the Non-Negotiable Criteria 1-4 in order for the review to continue to Section II.			
Non-Negotiable **1. THREE-DIMENSIONAL LEARNING:** Students have multiple opportunities throughout each unit to develop an understanding and demonstrate application of the three dimensions. ☒ Yes ☐ No	**Required** **1a)** Materials are designed so that students develop scientific content knowledge and scientific skills through **interacting with the three dimensions** of the science standards. The majority of the materials **engage students** in integrating the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) to support deeper learning.	**Yes**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of the materials engage students in integrating the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) to support deeper learning. The activities and investigations within the materials integrate the three dimensions through each module's overall Performance Expectations. Students engage in activities and investigations to develop scientific ideas and apply the CCCs to organize their thinking and help them develop the DCIs for that module. For example, in the Physical Science Module, How Can We Change an Object's Motion? Lesson 1: Let's Get Moving, students engage in several stations to develop an understanding that objects start to move through a push or a pull (DCI, LE.PS2A.b.). The stations include a Ball Station where they roll a ball back and forth, a Car Station where they make a car move, a Tray Station where they make a plastic tray move in different directions while it remains flat against the ground, and a Cardboard Tube Station where they use a wooden dowel to make a cardboard tube move.

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			Then, in Lesson 3: Faster, Faster! students revisit the stations from Lesson 1. Within this lesson, students apply previously learned concepts in greater detail as they engage in Planning and Carrying Out Investigations (SEP) in pairs to try to get the objects to move fast and slow. Students use observations as evidence to explain that a bigger push or pull causes objects to move faster and a smaller push or pull causes objects to move slower (DCI, LE.PS3C.a; CCC, Cause and Effect). As students engage in Constructing Explanations (SEP) in pairs, they ask each other, “Why do you think that?” to remind each other to use evidence to support their ideas. In the Life Science Module, What Do Plants and Animals Need to Live? Lesson 5: Hungry, Hungry Caterpillar, students use evidence from observations (SEP, Analyzing and Interpreting Data) to revise and support an argument about what caterpillars need to live and grow (DCI, LE.LS1C.a). Students revisit the What Does it Need? chart from the previous lesson to review the needs of a coyote, woodpecker, and beaver, supporting students in identifying Patterns (CCC) of the needs of living things. Students then observe and record observations of live caterpillars in the classroom and watch videos of several caterpillar habitats to revise their claims made in the previous lesson about what caterpillars need to live and grow. Later, in Lesson 9: Play Area Part 1, students use observations and knowledge from previous lessons about what

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			plants and animals need to live to develop a model (SEP, Developing and Using Models) that represents relationships among living things on an area of land as part of a science challenge (DCI, LE.ESS3A.a). Students observe photographs taken of the land, record observations in a class anchor chart, and analyze and interpret data (SEP, Analyzing and Interpreting Data) to describe the plants and animals living there. Students engage in Developing and Using Models (SEP) to represent the relationships between the living and nonliving things in the habitat (CCC, Systems and System Models). In the Earth and Space Module, How Can We Be Ready for Weather? Lesson 1: Mysterious Moisture, students construct an initial explanation about what causes a pole to be wet on one side and dry on the other side as they share observations. Students then draw a model (SEP, Developing and Using Models) in their STEM notebook showing what they think caused the phenomenon. In Lesson 2: What Is Weather? students connect types of weather to what is observed in nature. In Lesson 3: Making Sense with Models, students first revisit their initial model from the previous two lessons in their STEM notebooks to develop a revised model of their ideas on which weather element could be combined with rain to cause the pole to look the way it did. Students then work in pairs to develop a three-dimensional model (SEP, Developing and Using Models) of their ideas to test and record observations.

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			Students work in groups of four as they carry out an investigation (SEP, Planning and Carrying Out Investigations) and activate their new knowledge about different elements of weather, including rain, sunlight, wind, and temperature (DCI, LE.ESS2D.a) to figure out which elements combined to cause (CCC, Cause and Effect) a pole to become wet on one side and stay dry on the other side. Students first test a single element of weather, such as rain pouring from a spray bottle from directly above the top of the cardboard tube (pole), then students combine elements by using a fan to represent wind. Students record their observations in their STEM notebooks to identify how the water made the pole wet and use these observations as evidence to develop a revised explanation (SEP, Engaging in Argument from Evidence) of what caused (CCC, Cause and Effect) the pole to get wet on one side but stay dry on the other side.
Non-Negotiable **2. PHENOMENON-BASED INSTRUCTION:** Explaining phenomenon and designing solutions drive student learning. ☒ Yes ☐ No	**Required** **2a) Observing and explaining phenomena** and designing solutions provide the purpose and opportunity for students to engage in a coherent sequence of learning a majority of the time. Phenomena provide students with authentic opportunities to ask questions and define problems, as well as purpose to incrementally build understanding through the lessons that follow.	**Yes**	Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning the majority of the time. Phenomena in the form of common experiences at the beginning of each unit provide students with authentic opportunities to ask questions and define problems to motivate learning about the core ideas of the unit, and this provides the purpose for students to engage in the investigations and incrementally build understanding through the lessons that follow as they work towards

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			figuring out the phenomenon. Each module begins with an Ada Asks Introduction video that explains the problem or challenge for the phenomenon. In some modules, multiple phenomena or problems may be presented throughout the lessons, but all phenomena build upon one another and support students in sensemaking around the anchor phenomenon. Students regularly revisit the phenomenon to engage in sensemaking and revise their initial models or explanations. For example, in the Physical Science Module, How Can We Change an Object's Motion? students observe the anchor phenomenon, a video of an air hockey puck that moves quickly into a goal. In Lessons 1-3, students use observations, investigations, and models to determine that pushes and pulls caused the hockey puck to move into a goal. In Lesson 4: Paddle Tests, students act as sports engineers and apply the concepts from the previous lessons to help Ada solve a problem of building a tabletop hockey game. The Ada Asks Engineering video guides students to ask questions, such as the following: “What can we use to push the ball?” and “What can we use as a game board?” These questions lead students to begin the investigation for building a hockey game board. Students first observe the Tennis video to see two individuals playing tennis using a racquet, ball, and net on a court. Then, students record observations from the Rocket Test Machine video of a machine launching and striking a ball several times. Students engage in sensemaking around the phenomenon by

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			designing and building a tabletop hockey game over the next couple of lessons to determine what caused the air hockey puck to move into the goal. In Lessons 7 and 8, students investigate wall materials to determine the best side wall for their game, which they add to their tabletop hockey game. At the end of Lesson 8, students test whether the wall works as intended and then determine if they can score a goal by colliding with the wall. In Lessons 9 and 10, students apply what they have learned to a new scenario involving miniature golf. In the Life Science Module, What do Plants and Animals Need to Live? Lessons 1-3, students investigate a phenomenon by observing a video of radish plants that look unhealthy. In the video, Ada explains that she has been trying to grow some radish plants, but the plants have started to look unhealthy. Ada asks the students to help figure out what the radish plants need. Students record initial observations of the radish plants in their STEM notebooks. Students participate in a class discussion to share their observations, and the teacher records students' findings in a class chart. Students then generate questions to identify what they need to know to help the radish plants. Through completing investigations, observations, and data analyses in Lessons 1-3, students determine that the radish plants need light and water to grow. In Lesson 1: Mystery at School, students use observations as evidence to explain why the radish plants look

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			unhealthy. Students record details of healthy and unhealthy plants in their STEM Notebooks. The teacher then records students' observations and the details students noticed about unhealthy plants in a class chart. Students then develop questions to determine what the plants need to be healthy. In Lesson 2: Making a Plant Plan, students collaborate to plan how to collect data and investigate the effect of light and water on live radish plants. Students set up their radish plant experiments and make predictions about what will happen to each plant throughout the investigation. In Lesson 3: Plant Patterns, students collect and analyze their final pieces of data from their radish plant investigation. They use their data to identify patterns of growth and survival based on how each plant was treated during the investigation. Students use their observations as evidence to develop models showing the different resources plants need to live. In the Earth and Space Module, How Can We Be Ready for Weather? Lessons 4-7 focus on the phenomenon of a snowman that melts at certain times, but not at other times. In the video, Ada, who recently visited her family in the northern part of the United States, describes a snowman that melted over two days, but noticed that sometimes it melted a lot, but didn't seem to melt at all during other times. In Lesson 4: Snow, Snow, Go Away, students observe images of a snowman over a 48-hour period and use observations as evidence to determine that the snowman melts

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			more during the day than at night. After participating in a partner activity of sorting snowman cards in chronological order, students generate observations and questions about what they need to know to explain the phenomenon. The teacher records students' ideas in a T-Chart for the class. In Lesson 5: What are You Wearing? students obtain information from the text about how people dress to prepare for different types of weather conditions, including temperatures. In Lesson 6: Outfits as Evidence, students utilize the information from Lesson 5 and new observations to determine that it gets warmer during the day and cooler at night. They plan an investigation to determine if the temperature change is caused by sunlight. In Lesson 7: Here Comes the Sun! students use a model to investigate the difference in the rate of melting and temperature change with sunlight, as opposed to without sunlight. They observe the difference in melting rate and use it as evidence to explain that, when the sun is out, the temperature increases and the snowman melts, but, at night, it does not melt because it gets colder after the sun has set.
	Required **2b)** Materials are designed to provide sufficient opportunities for students to **design and engage in investigations at a level appropriate to their grade band** to explain phenomena. This includes testing theories or models, generating data, and using reasoning and scientific ideas to	**Yes**	Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. Students engage with the SEPs within the K-2 grade band. The materials include opportunities for students to build their ability

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	provide evidence to support claims.		to engage with the Science and Engineering Practices over time. For example, in the Physical Science Module, How Can We Change an Object's Motion? Lesson 5: Let's Change Our Direction, students use observations as evidence to explain that an object changes its direction of motion when pushed (DCI, LE.PS2A.a, LE.PS2A.b). During the lesson, students engage in Developing and Using Models (SEP) and Constructing Explanations (SEP). Students observe the video of the puck going into the goal in slow motion and notice the direction the puck comes from before it goes into the goal. Students record their observations in their STEM notebook by drawing arrows to show how the puck moved into the goal from the video. Students participate in a whole-class activity of pushing a ball in different directions around a circle. Students then make a drawing in their STEM notebooks to show how the direction of a push causes a ball to move in a particular direction. Students then work in pairs to push a ball around a hockey game board to observe what causes an object to move in different directions (CCC, Cause and Effect). Students use their models and observations to discuss their experiences in pairs and conclude that a ball changes its direction of motion when it is pushed in a new direction. In the Life Sciences Module, What Do Plants and Animals Need to Live?, Lesson 6: World of Webs, STEM Notebook Sheet 6, students draw what they observed in the three Caterpillar Habitat cups,

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			such as caterpillars, webs, and sand. Students share their drawings with their peers and talk about how the objects in the caterpillar habitat are related. Students draw the conclusion that caterpillars change their habitat by building webs (DCI, LE.ESS2E.a). In the Engineering Design Module, How Can We Stay Cool in the Sun? Lesson 9: Carrying the Shade Part 2, students identify a problem where sunlight shining on a person makes the person feel warm (DCI, LE.PS3B.a). During the lesson, students engage in Asking Questions and Defining Problems and Designing Solutions. Students ask questions and conduct research to better understand the new problem of the playground being too hot for Ada to sit on. Students then brainstorm solution ideas to design a portable shade that solves the problem of sunlight causing a person to be warm (CCC, Cause and Effect).
	2c) Materials provide frequent opportunities for students to **make meaningful connections** to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.	**No**	Materials do not provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena. The materials lack frequent and intentional opportunities for students to connect the scientific concepts to their personal experiences and community. While students engage in hands-on activities, many lessons do not encourage them to relate these investigations to familiar real-world situations beyond the classroom. Although students

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			revisit the phenomenon over the course of the module, adding connections made from learning opportunities, the teacher materials offer minimal guidance on how to help students make meaningful connections to their lives. At the beginning of each module, a family letter is sent home to provide families with an overview of the unit, topics that will be explored, and opportunities for families to share personal, meaningful connections of the phenomenon with the teacher. However, the materials often lack guidance for when to implement these shared family connections within the specific lessons. In the Physical Science Module, How Can We Change an Object's Motion? Lesson 3: Faster, Faster! students actively explore how force affects motion by using familiar classroom objects, such as balls, toy cars, trays, and tubes. These hands-on investigations provide an opportunity for students to connect their prior experiences, such as rolling a ball and pulling a toy, to the science concept of force and motion, but the materials do not specifically provide any guidance or opportunities for teachers to facilitate discussions to make these connections. At the end of the lesson, students apply what they learned in the lessons to a new scenario, miniature golf, but they do not make connections to their own experiences in which they could apply their learning. In the Engineering Design Module, How Can We Stay Cool in the Sun? Lesson 5: Picking Parts, the teacher reminds students to think about the

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			models they drew in the previous lesson to assist in determining what materials should be used to build their solutions for the hot playground, but the materials do not provide guidance for teachers to also have students think about their own personal a knowledge and experiences to make real world connections to assist with generating ideas to help solve the problem. The materials redirect students to focus only on what they have learned about the models and from previous lessons to drive their designs.
Non-Negotiable **3. ALIGNMENT AND ACCURACY:** Materials adequately address the Louisiana Student Standards for Science. ☒ Yes ☐ No	**Required** **3a)** The majority of the Louisiana Student Standards for Science are incorporated, to the **full depth of the standards**.	**Yes**	The majority of the Louisiana Student Standards for Science are incorporated to the full depth of the standards. The materials address all parts of the Louisiana Student Standards for Science (LSSS) and integrate the SEPs, DCIs, and CCCs, as well as the Engineering, Technology, and Applications of Science (ETS) DCIs. The instructional materials provide students with a variety of methods to engage in science concepts including hands-on activities, videos, reading articles, and labs. For example, LSSS K-LS1-1 is fully addressed in the Life Science Module, What Do Plants and Animals Need to Live? In Lessons 1-3, students use observations and, with guidance from the teacher, plan and carry out an investigation (SEP, Planning and Carrying Out Investigations) to answer scientific questions about what radish plants need to live (DCI, LE.LS1C.a). Students record observations to use as evidence to describe the Patterns (CCC)

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			of change in plants based on whether the plants receive light and/or water. Students analyze and interpret multiple pieces of data (SEP, Analyzing and Interpreting Data) recorded over time to determine what plants need to be healthy. Students use observations as evidence to describe Patterns (CCC) in data and figure out that plants need light and water to live. This concept is further developed in the module and built upon in the next lessons that also fully address LSSS K-ESS3-1. In Lessons 6 and 7, students initially observe that caterpillars build webs and work to figure out that organisms need other things beyond food and water, such as shelter or space to grow. Students also develop the understanding that plants and animals change their environment to get the things they need (DCI, LE.ESS3A.a.) In Lesson 6, students observe different parts of a habitat of live caterpillars in a cup. Students use those observations as evidence to develop a model (SEP, Developing and Using Models) to show that different parts of the caterpillar habitat are related (CCC, System and Systems Models). In Lesson 7, students engage in Obtaining, Evaluating, and Communicating Information (SEP) from a text to identify additional things plants and animals need to grow (DCI, LE.ESS3A.a). Students also generate observations from studying caterpillars' webs found in their natural environment. Students use the evidence from the text and observations, as well as knowledge gathered from Lesson 6, to develop

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			a model (SEP, Developing and Using Models) showing how the webs relate to the things caterpillars need to survive (CCC, Systems and System Models).
	Required 3b) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. The Lesson Planners provide suggested times for completing lessons within each module; however, instruction and the completion of various investigative activities would likely take significantly longer than what is listed in the Teacher's Guides. The materials include 40 lessons across four modules that fit within the typical academic calendar for the grade. The lessons and investigations are flexible and paced appropriately, providing students the opportunity to develop key scientific concepts through hands-on activities and integration with other subjects. Each lesson includes Extension activities, as well. Suggested breaks are provided within lessons to assist teachers with pacing to complete lesson instruction over the course of multiple days.
	Required **3c)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	The science content is accurate, up-to-date, and aligned with the most current and widely accepted explanations. No evidence of incorrect or out of date science explanations could be found. The materials provide relevant research and references in each module to support the science content presented. The materials provide accurate and up-to-date scientific content, ensuring students learn widely accepted concepts in Physical, Life, and

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			Earth Sciences through age-appropriate and evidence-based lessons. In the Engineering Design Module, How Can We Stay Cool in the Sun? students investigate and develop solutions to solve a problem of a playground that is too hot to sit on by studying, designing, and testing model shade solutions. Students apply knowledge from the Engineering Design Module and from the Earth and Space Module of the widely accepted explanation that the sun warms Earth's surface, as they engineer shade solutions to test and solve the problem. In the Life Sciences Module, students investigate the needs of plants and animals through hands-on labs that include the study of live radish plants and caterpillars. In Lessons 1-3, with support and guidance from the teacher, students plan and carry out an investigation over the course of multiple days to study the effects of light and water on radish plants. Students record observations and analyze data to determine and support the widely accepted explanation that plants need light and water to survive. In Lessons 4 through 5, students study live caterpillars and read nonfiction texts to investigate and identify the widely accepted explanation that living things need food and water to grow. In the Physical Science Module, How Can We Change An Object's Motion? Lessons 1-6 accurately describe forces as pushes and pulls, aligning with Newton's Laws of Motion in an age-appropriate way.

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	3d) In any one grade or course, instructional materials spend **minimal time on content outside** of the course, grade, or grade-band.	**Yes**	Instructional materials spend minimal time on content outside of the course, grade, or grade-band. The materials, including videos, labs, hands-on activities, and reading articles, focus primarily on the K-2 grade band for science content. The ETS standards are embedded within the Performance Expectations and are addressed with the LSSS for the grade level in an integrated approach. For example, in the Physical Science Module, How Can We Change An Object's Motion? Lessons 1-3, students investigate force and motion through the phenomenon of an air hockey puck moving into a goal. Students engage in investigations and draw models to establish that a push or pull caused the hockey puck to move. Students also determine, through hands-on investigations of various objects, that a bigger or smaller push or pull can cause an object to move faster or slower. The activities and instructional materials stay within the focus and age appropriateness of LSSS K-PS-2-1 and K-PS-2-2. In the Earth and Space Module, How Can We Be Ready for the Weather? Lessons 4-7, students investigate energy through the phenomenon of a snowman melting at some times but not at other times. In Lesson 4, students use observations as evidence to determine that the snowman melts more during the day than at night. In Lesson 5, students obtain information from informational texts about how people dress to prepare for different types of weather conditions, including temperatures. In Lesson 6, students

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			combine information from Lessons 4 and 5, along with new observations to support and determine that it gets warmer during the day and cooler at night. To further support this concept, students plan an investigation to determine the temperature change is caused by sunlight. In Lesson 7, students use a model to investigate the difference in the rate of melting and temperature change with sunlight, as opposed to without sunlight. Students use their observations and analyze their data to explain and support that sunlight warms Earth's surface, causing the temperature to change throughout the day and night. The activities and instructional materials stay within the focus and age appropriateness of LSSS K-PS3-1. In the Engineering Design Module, How Can We Stay Cool in the Sun? Lesson 6: Design a Shade, students create models to solve real-world problems, a task that aligns with the grade level's engineering design standards. The activities remain within the scope of early design thinking and problem-solving, without introducing advanced engineering concepts.
Non-Negotiable **4. DISCIPLINARY LITERACY:** Materials have students engage with authentic sources and incorporate speaking, reading, and	**Required *Indicator for grades 4-12 only** **4a)** Students regularly engage with **authentic sources** that represent the language and style that is used and produced by scientists; e.g., journal excerpts, authentic data, photographs, sections of lab reports, and media releases of current science research. Frequency of engagement with authentic sources should	**N/A**	Not applicable to this grade level.

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writing to develop scientific literacy. ☒ Yes ☐ No	increase in higher grade levels and courses.		
	Required **4b)** Students regularly engage in **speaking and writing** about scientific phenomena and engineering solutions using authentic science sources; e.g., authentic data, models, lab investigations, or journal excerpts. Materials address the necessity of using **scientific evidence** to support scientific ideas.	**Yes**	Students regularly engage in speaking and writing about scientific phenomena and engineering solutions using authentic sources. Materials address the necessity of using scientific evidence to support ideas. Students maintain individual STEM notebooks throughout the modules in order to apply the writing process to write about scientific phenomena and engineering solutions. Students also use individual STEM notebooks to record questions, predictions, claims linked to evidence, and conclusions. Students regularly participate in whole-class and partner discussions using observations and data collected through hands-on investigation and record information in their individual STEM notebooks. Students regularly use scientific evidence to support scientific ideas. For example, in the Earth and Space Module, How Can We Be Ready for the Weather? Lesson 4: Snow, Snow, Go Away, students investigate the phenomenon, “Why does a snowman melt at some times but not at other times?” Students ask questions based on observations of a snowman melting as the temperature changes over time. Students draw conclusions based on observations as to why snowmen melt during certain times of the day, but do not melt at other times of the day. Students use Lesson 4 Activity Sheets A and B to establish a pattern from sequencing images of a snowman melting. The teacher guides students

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			throughout the lesson to share and record what they notice on a class T-chart as Observations and things that they wonder as Questions. The students' images help them to identify a pattern of snow melting over two days caused by the change of increased temperature over time. In the Life Science Module, What Do Plants and Animals Need to Live? Lesson 8: Sidewalk Solutions, students generate observations using an authentic photo of a tree growing out of a cement sidewalk. Students engage in speaking with their shoulder partners to identify observations and make connections to the previous lessons in the module about how the tree is changing its environment to meet its needs. Students then record their ideas of why they think the tree is causing cracks in the sidewalk by drawing and writing in their STEM notebooks. Students use those ideas to generate solutions to the cracks in the sidewalk after considering how the cracks affect people's abilities to walk. Students participate in a class discussion to complete a chart that details the needs of the tree, the needs of people, and solutions to the problem. Students collaborate with a partner to engineer solutions based on scientific knowledge from previous lessons about what plants and animals need for survival and record their ideas in their STEM notebooks. In the Earth and Space Science Module, Lesson 10: Let's Hit the Trail, students apply all of the knowledge and information developed about weather from Lessons 1-9 to

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			analyze weather forecasts to develop and communicate a plan for preparing for weather hazards. Students work in pairs to analyze data from a temperature and weather chart to help prepare Ada for a hike by selecting appropriate weather gear to pack in her backpack and determining which direction Ada should travel based on the forecasted conditions. Students engage in speaking with their partners to share observations and apply scientific knowledge about the weather, and utilize data to support their reasoning.
	Required **4c)** There is **variability** in the tasks that students are required to execute. For example, students are asked to produce solutions to problems, models of phenomena, explanations of theory development, and conclusions from investigations.	**Yes**	Materials include variability in the tasks that students are required to execute. Across the materials, students regularly engage in a variety of tasks, such as developing and refining models to explain scientific phenomena, engaging in hands-on activities and scientific investigations, and recording observations and data in individual STEM notebooks, drawing conclusions from investigations, and producing solutions to problems. For example, in the Physical Science Module, How Can We Change An Object's Motion? Lesson 2: Move That Ball, students review the video from Lesson 1 of a hockey puck moving into the goal with the purpose of investigating what happened to the hockey puck before it went into the goal. Students work with a partner and use a tennis ball to represent the hockey puck and explore different ways to move the ball using yarn, tape, a tongue depressor, and a straw.

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			Students record their observations in their STEM notebooks and engage in a class discussion to record findings in a class T-Chart. Students then develop models to show how the ball was pushed or pulled and how the ball started to move in their individual STEM notebooks. Students then use their experiences from Lesson 1 and 2 to explain that the puck was likely pushed before it went into the goal. In the Life Science Module, What Do Plants and Animals Need to Live? Lesson 3: Plant Patterns, students observe plant growth under different conditions, such as light versus no light and water versus no water, and record data in their STEM notebooks over time. Students then analyze their observations to construct an explanation about what plants need to survive and revise their predictions based on emerging patterns. In the Engineering Design Module, How Can We Stay Cool in the Sun? Lesson 9: Carrying the Shade Part 2, students engage in generating a solution to a problem in which sunlight shines on a person and makes the person feel warm. Students ask questions and conduct research to better understand the problem and also apply observations from previous lessons. Students conduct research by reading a nonfiction book, Keeping Cool at the Zoo and by studying images of portable shade cards. Students then design a stable portable shade that solves the problem of sunlight causing a person to be warm by brainstorming solution ideas, identifying structures that are important

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to the solution, and drawing an initial solution idea in their STEM notebooks.
	Required **4d)** Materials provide a coherent sequence of learning experiences that **build scientific vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	Materials provide a coherent sequence of authentic science sources that build scientific vocabulary and knowledge over the course of study. Vocabulary is addressed as needed, but only after students have first had the opportunity to build conceptual understanding of the term. In the Grades K-2 setting, vocabulary cards are provided for teachers to build a word wall throughout the course of a module and ensure students have ample opportunities to apply the use of vocabulary terms within scientific discourse and in their STEM notebooks. For example, in the Life Science Module, What Do Plants and Animals Need to Live? Lesson 3: Plant Patterns, rather than the teacher defining terms upfront, students engage in the investigations and develop an understanding of the terms over time. Students plant seeds, track changes over time, and analyze how different conditions affect plant health. As students discover patterns, they are introduced to vocabulary, such as growth, survival, and nutrients, to describe their findings, reinforcing terms through experience. In Lesson 6: World of Webs, students develop and use a model to describe how different parts of the caterpillar habitat are related, including webs built by the caterpillars. Students generate observations of the changes caterpillars have made inside their cup habitats. Students record their

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			findings of the different parts of the caterpillar's habitat in their STEM notebooks. In Lesson 7: You Get What You Need, students build on their knowledge about how caterpillars made changes to their habitats by building webs to further investigate how caterpillar webs help the organisms get what they need for survival. Then the teacher introduces students to the vocabulary term, environment. Students generate ideas about the meaning of the term environment. The teacher then provides some examples of environments, including: school, the ground, the sun, air, grass, and a stream. The teacher also explains that the caterpillar habitat cups are also an environment. Students identify how the caterpillar changed its environment by building webs. In the Earth and Space Module, How Can We Be Ready for the Weather? Lesson 2: What is Weather? students obtain information from weather images that can be used as evidence to determine which weather elements combined to cause a pole to be wet on one side and relatively dry on the other side. Students create a Weather Is chart that includes four elements of weather: wind, rain, sunlight, and temperature. Students engage in identifying these vocabulary terms by using images to further identify examples of each weather element. Students analyze and sort images without words into the types of weather categories and engage in scientific discussions with a partner to explain their reasoning for how and why they sorted each

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			image. The Teacher's Guide also suggests that the teacher incorporate sound and gesture for each type of weather element for students to use regularly throughout the lesson as they classify each card and in the whole group discussion. Students revisit their initial models from Lesson 1 and the anchor phenomenon to incorporate the weather elements vocabulary into their explanations of how the pole is wet on one side and dry on the other side.
SECTION II: ADDITIONAL CRITERIA OF SUPERIOR QUALITY			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations, including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the Louisiana Student Standards for Math. ☒ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are **coherent within and across** units. The **progression of learning** is coordinated over time, clear, and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The overall organization of the materials and the development of the disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units and are organized to support learning through a natural progression. Students engage with and build understanding of the three dimensions of the standards at increasing levels of complexity and sophistication and engage in a coherent progression of learning that is coordinated over time, clear, and organized. The module lessons are organized so that DCIs, SEPs, and CCCs build upon each other throughout the course of study. Teacher guidance includes a Module Overview that includes the Phenomena and Problems Storyline that describes the problem or problems students will investigate and develop solutions for as they develop science concepts and figure out the answers to their questions throughout the module. The Module Overview also includes what students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			will figure out, how students will represent what they learned, and how they will engage with all three dimensions in each lesson. The materials also include a section on background knowledge and Naive Ideas students may present, along with explanations to address student misconceptions, supporting student progression towards a deep understanding of the Performance Expectations. For example, in the Physical Science Module, How Can We Change An Object's Motion? Lessons 1-3, students explain a phenomenon of how a hockey puck is pushed into a goal using forces and collisions (DCI, LE.PS2A.a, LE.PS2A.b). In Lesson 1: Let's Get Moving, students use observations as evidence to explain that objects start moving when they are pushed or pulled (CCC, Cause and Effect). In Lesson 2: Move that Ball, students build on their initial observations and explanations by drawing models (SEP, Developing and Using Models) to show how a push or a pull starts an object's motion (CCC, Cause and Effect). They then make connections back to the anchor phenomenon to explain that the hockey puck was pushed before it went into the goal. Then, in Lesson 3: Faster, Faster! students use observations as evidence to explain that a bigger push or pull causes objects to move faster than a smaller push or pull. Students conclude that the puck was pushed hard to cause it to move fast (CCC, Cause and Effect) in the anchor phenomenon (SEP, Constructing Explanations). Through the progression of

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			these lessons, students figure out that the hockey puck was pushed hard to cause it to move quickly and that the puck may have collided with the side wall, which pushed on the puck and caused it to change direction and move into the goal. In the Earth and Space Science Module, through a variety of activities, investigations, simulations and informational reading, students explain weather-related phenomena and solve weather-related problems. In Lessons 8 and 9, students consider and propose solutions to weather-related problems based on location (DCI, LE.ESS3B.a). In Lesson 8: Stormy Weather, students ask questions to find out what types of weather hazards are likely based on where they live and where Ada lives. Students obtain information (SEP, Obtaining, Evaluating, and Communicating Information) about how to prepare for those hazards through the simulation Storm Smart. In Lesson 9: Planning a Visit, students use historical weather data (CCC, Patterns) as evidence to decide the best month for Ada to have a friend visit her tree house (SEP, Obtaining, Evaluating, and Communicating Information). Through these lessons, students figure out that some kinds of severe weather are more likely than others in a given region and that weather scientists forecast severe weather so that the communities can prepare for and respond to these events. In the Engineering Design Module, How Can We Stay Cool in the Sun? students identify and work towards the

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			solution to the problem of a playground that has equipment that is too hot to touch or play on without possible injury (DCI, LE.PS3B.a). As students work through Lessons 1-7, they discuss possible solutions to the problem as they investigate (SEP, Planning and Carrying Out an Investigation) the temperature of different materials by touch and measurements with a thermometer (CCC, Cause and Effect). In Lessons 8-10, students work more independently with the design process. By the end of the module, students choose a material and a design to create shade (SEP, Designing Solutions) to keep the playground equipment cool enough to play on without injury due to the heat caused by sunlight (CCC, Structure and Function).
	5b) Students **apply grade-appropriate mathematical** thinking in meaningful ways, when applicable. They are not introduced to math skills that are beyond or far below the applicable grade level expectations in the Louisiana Student Standards for Mathematics. Preferably, math connections are made explicit through clear references to the math standards, specifically in teacher materials.	Yes	Students apply grade-appropriate mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills that go beyond the Louisiana Student Standards for Mathematics (LSSM) for Kindergarten. Students regularly apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning. For example, in the Earth and Space Module, How Can We Be Ready for the Weather? Lesson 9: Planning a Visit, students record data from historical weather information to identify patterns in weather across three months. Mathematical thinking is

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			incorporated in an authentic manner as students count the number of days different types of weather occur within a three-month period. Students represent their data analysis using bar charts and cubes (LSSM K.CC.A.1, K.CC.A.3, K.CC.B.4, K.CC.B.5). Students use this math to develop a deeper understanding of the type of weather likely to occur and generate predictions on the best time for Ada and her friends to visit her tree house. In the Life Science Module, What Do Plants and Animals Need to Live? Lesson 3: Plant Patterns, students analyze their collected data on plant growth patterns. They describe patterns based on how plants respond to various resources such as water and light, which requires counting, comparing, and organizing observations (LSSM.K.MD.A.1). Students apply mathematical thinking in organizing, counting, and analyzing data from experiments. They use basic arithmetic and comparisons to identify patterns and correlations within biological investigations (LSSM.K.CC.A.1). In the Engineering Design Module, How Can We Stay Cool in the Sun? Lesson 2: Warmer or Colder, students collaboratively plan and carry out an investigation that will help them understand a problem in which one surface is warmer than another. Students incorporate measurement and data concepts by describing and comparing measurable attributes (LSSM.K.MD.A.1) of identifying which bag was warmer or colder using sense of touch.

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			Students take turns feeling each bag and use counters to deposit in the bucket for the bag they feel as warmer. The class then counts (LSSM.K.CCa.1) the counters in each pail to determine the overall class consensus of the warmer bag. Students then analyze images into two categories: warmer or colder. Students use these experiences to determine that the best method of collecting data involves the use of a thermometer to measure temperature to identify the hottest surfaces on a playground (LSSM K.MD.A.1).
6. SCAFFOLDING AND SUPPORT: Materials provide teachers with guidance to build their own knowledge and to give all students extensive opportunities and support to explore key concepts using multiple, varied experiences to build scientific thinking. ☒ Yes ☐ No	**Required** **6a)** There are separate **teacher support materials** including: scientific background knowledge, support in three-dimensional learning, learning progressions, strategies for addressing diverse emerging conceptions, guidance targeting speaking and writing in the science classroom (i.e., conversation guides, rubrics, exemplar student responses). Support also includes teacher guidance in the materials' **approach to phenomenon-based instruction** and provides explicit guidance on how the materials **address, build, and integrate the three dimensions.**	**Yes**	Materials include separate teacher support resources. Support materials include scientific background knowledge, support in three-dimensional learning, learning progressions, strategies for addressing diverse emerging conceptions, guidance targeting speaking and writing in the science classroom, three-dimensional strategies sections that detail explicit techniques for highlighting SEPs, DCIs, and CCCs further, and sample prompts and conversation guides for class discussions. Support also includes teacher guidance in the materials' approach to phenomenon-based instruction and provides explicit guidance on how the materials address, build, and integrate the three dimensions. Each module includes a Teacher Guide, Letter to the Educator, A Module Kit and Materials List, a document that lays out the Module Alignment to NGSS, Lesson Planners, Lesson References, and a Guide to Module Investigations. The

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			Phenomena and Problems Storyline overview identifies the phenomena students encounter, what students figure out through the lessons, and individual lesson objectives that support the scientific knowledge students gain from the phenomenon. The Teacher Guide also includes an Assessment Map that outlines the different types of assessments used across the materials. Detailed Lesson Planners for each lesson provide teachers with student objectives, Naive Ideas, the DCIs, SEPs, and CCCs addressed, as well as ELA and Math Connections, and Extensions and Centers for each individual lesson. Each Lesson begins with background information and highlights vocabulary. Each lesson also provides a materials list and teacher preparation requirements. The lesson procedure is provided in detail, along with visuals as needed to support student activities and teacher instruction. Naive Ideas are embedded throughout the lesson and suggestions and guidance is provided for how teachers can address them. Naive Ideas are defined as an explanation for why students might have specific misconceptions about various science concepts. An example of a common DCI that is a Naive Idea is, “Only living things and supernatural things can cause forces.” The proposed explanation or reason for this naive idea might be, “Students may not realize that inanimate objects can apply forces.” It is also suggested that students might say, “People can push things, but tables can’t push things.”

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			The Assessment section includes rubrics and student Look For statements that teachers use to assess student mastery of concepts. The materials provide Teacher Reflection Questions for assessing student work.
	Required **6b)** Teacher resources include **educative resources** that are designed to **promote teacher learning** and support the wide range of teachers who use the materials. Unit and lesson planning resources include explicit guidance designed to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in ways that are aligned to the Louisiana Student Standards for Science and associated learning progressions.	**Yes**	Teacher resources include educative resources that are designed to promote teacher learning and support the wide range of teachers who use the materials. Unit and lesson planning resources include explicit guidance designed to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in ways that are developmentally appropriate and aligned to the LSSS and associated learning progressions. The teacher resources include support for building students' ability to appropriately apply the science and engineering practices. The teacher resources also align with the K-2 Learning Progressions and LSSS. Each module includes a Module Background Information section that "goes above and beyond what is expected of students," but is designed to help teachers effectively prepare for implementing each module and answer student questions. This section goes in depth into the specific DCIs, CCCs, and SEPs addressed within each module. Each module includes a Materials Management and Safety section. The information in this section is designed to help teachers inventory, organize, prepare, and manage the materials needed to teach each

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			module. This section also includes information on safety in the science classroom, both general and specific concerns for each module. A sample safety contract is included to help ensure that students and their parents are aware of proper science classroom procedures and behaviors necessary to a successful hands-on science experience. Each module includes a Teacher's Guide which has a Guide to Module Investigations that highlights symbols embedded throughout the lesson notes to assist teachers in providing instruction. Those symbols include: Icons for Common Core Standards in Literacy and Math, Naive Ideas, NGSS margin notes, Plan Ahead, Digital Resources, EL Strategies, Teacher Tips and Tech Tips, Safety Notes, and Classroom Breaks. Additionally, each module provides specific Professional Learning Resources that can be accessed through the Digital Resources tab. The Professional Learning Resources include guidance for navigating through the materials, teacher tips, and a Guide for Remote Teaching and Learning.
	Required **6c)** Support for **diverse learners**, including English Learners and students with disabilities, are provided. Appropriate suggestions and materials are provided for **supporting varying student needs** at the unit and lesson level using an accelerating learning approach. The language in which questions and problems are posed is not an obstacle to understanding the	**Yes**	Materials provide support for diverse learners, including English Learners and students with disabilities. Appropriate suggestions and materials are provided for supporting varying student needs at the unit and lesson level using an accelerating learning approach. Materials include teacher guidance to help support special populations and provide the opportunities for these students to meet the

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	content, and if it is, additional supports are included (e.g., alternative teacher approaches, pacing and instructional delivery options, strategies or suggestions for supporting access to text and/or content, suggestions for modifications, suggestions for vocabulary acquisition, extension activities, etc.). Materials include **teacher guidance to help support special populations** and provide the opportunities for these students to meet the expectations of the standards and enable regular progress monitoring.		expectations of the standards and enable regular progress monitoring. Materials include diverse learner support with specific tips, techniques, and points to consider to support the teacher in recognizing and valuing student resources and participation. Lessons include embedded support notes for teachers in categories such as EL Strategy, Teacher Tip, Tech Tip, Series Connection, and Safety. The materials also include a Remediation section following each Formative Assessment or Checkpoint that includes examples of student difficulty and suggestions for student support. For example, in the Life Science Unit, What Do Plants and Animals Need to Live? the Remediation section states, “Students may have a difficult time recognizing that while plants can live without light, they will not be as healthy nor grow as well as plants that receive both water and light. To support students’ thinking about which of the experimental conditions is best for plants, ask students to rate the plants in order from least to most healthy at the end of the investigation.” The Lesson Notebook, Activity Sheets, and the Instructional Slides can be downloaded in both English and Spanish. In addition, closed captioning [CC] is provided for each video lesson. For extended learning, the teacher may have students engage in art, math, writing, and spelling activities to expand their knowledge. In the Life Science Module, What Do Plants and Animals Need to Live? Lesson 5: Hungry, Hungry Caterpillar, the teacher’s lesson

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			procedure includes a Teacher Tip for students who may need support to connect their learning from Lessons 1-3 in figuring out that caterpillars get water from the leaves of the plants. The Teacher Tip suggests that teachers support students by asking them to look back at their completed Lesson 3 Notebook Sheet and asking students to discuss their drawings of what is happening to the plant. This activates their thinking about plants needing water. The Enrichment Activity for Lesson 5 challenges students to draw a habitat design for the caterpillars. Guidance recommends that the teacher should encourage students to consider what materials they would use for the habitat and where they might find them in nature. In the Physical Science Module, How Can We Change An Object's Motion? Lesson 1: Let's Get Moving, the materials provide an Extension activity in which students compose a story that involves a push or pull scenario, learn to spell by tracing the words push and pull, or create a drawing of a push or pull scenario within their community. In the Earth and Space Module, How Can We Be Ready for the Weather? Lesson 4, the teacher facilitates a discussion about why students think the snowman melted at certain times but not at other times. The embedded EL Strategy states, "Suggest that students discuss content in both their native language and in English. This can help them become more familiar with the potential similarities between English and their native language." Then students engage in a

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			card sort in which they sort images into a sequence from least melted to most melted. The embedded EL Strategy states, “Pair bilingual students with students with very limited English if possible, or group students with a common primary language to facilitate support. This will allow students to first discuss a concept in their primary language and then, together or individually, express their thoughts in English.”
7. USABILITY: Materials are easily accessible, promote safety in the science classroom, and are viable for implementation given the length of a school year. ☒ Yes ☐ No	**Required** **7a)** Text sets (when applicable), laboratory, and other scientific materials are **readily accessible** through vendor packaging or certified partners.	**Yes**	Text sets (when applicable), laboratory, and other scientific materials are readily accessible through vendor packaging or certified partners. The majority of the materials needed to complete the lessons are included and/or easy to acquire. The Teacher Guides may be downloaded as a PDF file or used online. The modules contain the information required to teach the lesson, including links to relevant videos and reading materials. There are digital links to PDF files for the Materials List, Lesson Notebooks and Activity Sheets in both English and Spanish, and the Instructional Slides can be downloaded in both English and Spanish. There is a separate section that includes all of the Digital Resources for each module. The Materials Management and Safety Guide states that materials kits can be purchased directly from the vendor and contain most necessary supplies. For example, in the Life Science Module, What Do Plants and Animals Need to Live? the materials are supplied in

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			complete kits through the vendor, ensuring that the necessary resources for the lessons are easily accessible. The kits include a Teacher Guide, books, and scientific supplies, such as radish seedlings and mallow plants, designed to accommodate a class of 24 students. Additionally, the materials provide clear instructions for managing and reordering supplies. In the Earth and Space Module, How Can We Be Ready for the Weather? guidance notes that most of the items that the teacher and students will need during this module are supplied in the How Can We Be Ready for the Weather? module kit which is designed to accommodate a class of up to 24 students directly from the vendor. The kits are organized by module, and refill kits can be purchased for consumable items. Items that are not supplied in the kit are listed in the Needed but Not Supplied Materials List. Items not included in the kit are commonly available in most schools or can be brought from home. The materials include instructions for ordering an entire module kit, a refurbishment set of materials, or individual items.
	Required **7b)** Materials help students build an understanding of standard operating procedures in a science laboratory and include **safety** guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the curriculum.	**Yes**	Materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the materials. A Stay Safe! Contract is available for download in both English and Spanish and provides a

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			basic overview of safety guidelines for participating in science activities. General safety guidelines are provided at the start of each module and include safety measures, such as “Remind students to wash their hands before leaving the science classroom.” and “It is good practice to tell your students that, in science class, materials are never tasted.” Throughout the modules, students participate in several hands-on investigations that require teachers to review safety guidelines prior to the start of the lessons. Specific safety considerations are included within each module. For example, in the Engineering Design Module, How Can We Stay Cool in the Sun? guidance, regarding specific safety concerns, states, “The investigation and testing stations in Lessons 3, 6, and 7 should be set up so that the lamp cord does not present a tripping hazard and so that students cannot get close to or touch the lamp. Nobody should look directly at the lightbulb in the lamp when it is lit. The clamp gripper and the bases of the bookends contain latex. Students, especially those with a latex allergy, should not handle these materials. The foam pieces used in Lessons 3 and 7 contain latex. If you have students with a latex allergy, do not pass the foam pieces around the room. When such students need to record the temperatures of the foam pieces on their notebook sheet, ask them to observe their partner doing so and then copy the data onto their own sheet. Heavy black cardstock can be used instead of the

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			black foam. The thermometers do not adhere well to construction paper. The plastic tubing contains latex. Advise students with a latex allergy to not select this material for any of their designs." In the Physical Science Module, How Can We Change An Object's Motion? Lesson 2: Move that Ball, students use a straw to start a ball's motion. For safety purposes, safety guidance notes that students should not share straws and that they touch only their own straw. Additionally, because the black foam in the materials that contain latex, safety guidance notes that students who have latex allergy should not be allowed to attend the Foam station in Lesson 7: Wall Test, or use the black foam to construct a hockey game board in Lesson 8: Design My Hockey Game.
8. ASSESSMENT: Materials offer assessment opportunities that genuinely measure progress and elicit direct, observable evidence of the degree to which students can independently demonstrate the assessed standards. ☒ Yes ☐ No	**Required** **8a) Multiple types of formative and summative assessments** (iterative student models, student-centered discussions, data analysis, self-reflection and peer feedback investigations, and projects) are embedded into unit materials and allow teachers to evaluate student progress toward demonstrating standards.	**Yes**	Multiple types of formative and summative assessments are embedded into unit materials and allow teachers to evaluate student progress toward demonstrating standards. Students are summatively assessed on the module objectives at the end of the module. To prepare students to meet the module objectives, students complete smaller-scale lesson-level objectives that build toward periodic checkpoint assessments as well as the final summative assessment. Students complete a pre-assessment at the beginning of the module and at any point in the module where students first encounter a new concept. Additionally, students have multiple opportunities for self-assessment throughout

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			each module. At the beginning of each module, an Assessment Map is provided for teachers and details the types of assessment utilized, specific student objectives for each lesson, as well as the correlating DCIs, CCCs, and SEPs found within that lesson. In addition, the Mode of Assessment is listed in a chart format. Each module begins with a Pre-assessment that provides students an opportunity to provide their initial explanation of a phenomenon or their initial solution to a problem. Assessment guidance includes Questions for Teacher Reflection for each Pre-assessment to help teachers consider these aspects of students' initial ideas. The modules contain a variety of performance-based tasks, investigations, and projects in which students design solutions to real-world problems. For at least one task per lesson, the materials provide a table of indicators to assess students. Teachers use this table to identify the extent to which students are meeting the lesson objectives and areas where they need additional support. Checkpoint Assessments occur at points where students should be able to explain certain science concepts before moving on. A Checkpoint Assessment task requires students to make sense of a phenomenon or solve a problem by using all three dimensions. Opportunities for students to self-assess are embedded throughout the lessons. Every module concludes with either a Science Challenge or a Design Challenge. Used as a summative performance assessment, they

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			require students to work collaboratively and engage in multiple practices to assess students' ability to apply conceptual knowledge to solve a real-world problem related to the LSSS addressed. Science challenges, found in Life, Earth and Space, and Physical Science modules, center on the scientific goals of asking questions and explaining phenomena. Design challenges, found in the Engineering Design module, centers on the engineering design goals of defining problems and designing solutions. Each summative assessment is accompanied by scoring rubrics, which may be incorporated into teachers' grading systems as desired and should also be used to provide feedback to students. In the Life Science Module, What Do Plants and Animals Need to Live? students engage in investigations and data collection through the radish plant, in Lessons 1-3, and caterpillar observations, in Lessons 4-7. In Lesson 3, students participate in a group discussion of observations of how plants changed and record these changes as drawings in their STEM notebook. In Lesson 5, students participate in a group discussion of observations of what caterpillars need to live and record these changes as drawings in their STEM notebook. These both serve as formative assessments as students develop and revise their models based on their findings. In the Engineering Design Module, How Can We Stay Cool in the Sun? Lesson 5: Picking Parts, students select materials to use as structural

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			features in a stable shade model that reduces sunlight's warming effect on a surface. Teachers use this activity as an opportunity for a formative assessment as the teacher is provided guidance to utilize observations and information students recorded in their STEM notebooks about their initial selections of materials for their model shade solutions. A detailed Assessment Table is provided at the end of the lesson with indicators and suggestions for remediation based on student responses and observations.
	Required **8b)** Assessment items and tasks are structured on integration of the **three dimensions** and include opportunities to engage students in applying understanding to new contexts.	Yes	Assessment items and tasks are structured on integration of the three dimensions and include opportunities to engage students in applying understanding to new contexts. The summative performance assessments that occur at the end of each module require students to work collaboratively and engage in multiple practices. Science Challenges center on the scientific goals of asking questions and explaining phenomena. Design challenges center on the engineering design goals of defining problems and designing solutions. Both of the challenge activities provide an opportunity to assess students on the DCIs of the module as well as the focal SEPs and CCCs of the module. For example, in the Life Science Module, What Do Plants and Animals Need to Live? Lesson 10: Play Area Part 2, the module objective and the Science Challenge objective for students is to argue from evidence (SEP, Engaging in Argument from Evidence) about

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			which play area plan (SEP, Developing and Using Models) is best for the system of living things (CCC, Systems and System Models) on a piece of land (DCI, ESS3.C.a, ESS2.E.a). During the challenge, students complete the summative assessment, Science Challenge. In this lesson, students consider three possible play area plans for the schoolyard. Students predict how each plan will affect plants, trees, caterpillars, and woodpeckers. Students use their schoolyard models as well as their predictions to choose which plan they think Ada's school should adopt. After students share their ideas with the class, the class votes on which plan to choose. Students conclude the lesson by predicting how the habitat will change over time if the plan is enacted in a whole-group setting. The teacher is guided to evaluate students' proficiency using the Assessment Task Chart which provides guidance for reviewing students' Play Area Plan Poster and student responses from the class discussion. The Assessment Task Chart identifies the specific DCIs, SEPs, and CCCs addressed in the unit and provides Concepts and Practices, as they relate to the DCIs and student Look For statements. For example, the SEP, Developing and Using Models, is addressed in the Life Science Summative Assessment with the following descriptor: "Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s)." The student Look For

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			statement includes: “Students use their schoolyard model to predict whether each plant and animal will get what it needs to live. For example, students use the model to show how the woodpeckers need the trees and may not get what they need if most of the trees are cut down.” In the Physical Science Module, How Can We Change An Object's Motion? the module objective and the Science Challenge objective is to use observations as evidence to explain (SEP, Constructing Explanations) how a collision inside a mini golf feature caused (CCC, Cause and Effect) a ball’s direction of motion to change and develop a model (SEP, Developing and Using Models) to show how a collision or multiple collisions caused (CCC, Cause and Effect) a ball’s direction of motion to change (DCI, PS2.A, PS2.B). During the challenge in Lesson 9, students figure out how a feature on a miniature golf course by observing a ball moving into a miniature golf feature from one direction and coming out of the feature moving in a different direction. Students first make an initial explanation along with an initial model to explain what caused the ball to change directions. Students then make a 3D model of the miniature golf feature to demonstrate their explanation. During the challenge in Lesson 10, students test their models, share results with the class, and then return to their initial drawings. Students use evidence from the class’ 3D model to evaluate their initial model and revise their explanation about what caused the ball to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			change its motion. Students then revise their 3D model to demonstrate understanding.
	8c) Scoring guidelines and rubrics **align to performance expectations**, and incorporate criteria that are specific, observable, and measurable.	**Yes**	Scoring guidelines and rubrics align to performance expectations, and incorporate criteria that are specific and observable. Collaborative summative Assessments include Look For Statements, but do not include measurable criteria; therefore, summative assessments do not include methods for tracking individual student data and progress towards mastery of performance expectations. Although the summative assessments require collaborative engagement, formative and checkpoint assessments provide the opportunity for individual assessment. Each formative, checkpoint, and summative assessment task includes an assessment table or rubric to guide teachers in assessing student performance. The assessment rubrics provide indicators of success and indicators of difficulty to guide teachers. Kindergarten students are often assessed through their verbal responses, either through discussion or through their verbal descriptions of written work, design solutions, or models. Therefore, kindergarten rubrics are designed for in-the-moment assessment. Each assessment table includes objectives, Concepts and Practices (DCIs, SEPs, and CCCs), and Look For statements. The assessment rubric aligns with the LSSS and helps teachers evaluate student progress. The rubrics focus on specific, observable criteria, ensuring students’

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			understanding is assessed through practical tasks. The indicators of success are provided as Look For statements. Remediation guidance is provided for students who struggle on the assessment, and Enrichment guidance is provided to challenge students based on student need. For example, in the Physical Science Module, How Can We Change An Object's Motion? Lesson 1: Let's Get Moving, the rubric for the What Starts an Object's Motion? investigation clearly defines criteria aligned with three dimensional learning. During the assessment, students use observations to explain (SEP, Constructing Explanations) that objects start moving when they are pushed or pulled (DCI, K.LE.PS2.A.b; CCC, Cause and Effect). The rubric includes student Look For statements, such as the following: "Students say that objects start moving when they are pushed or pulled." (DCI); "Students use observations of starting the motion of a car, ball, tray, and cardboard tube as evidence that objects can start moving when they are pushed or pulled." (SEP); and "Students use the pattern of a car, ball, try, and cardboard tube starting to move with a push or pull to conclude that objects start moving when they are pushed or pulled." (CCC). Remediation guidance states, "If students are not able to make the conclusion that objects start moving when they are pushed or pulled, have them review the T chart. Ask, 'How did you start the motion of the (ball, car, tray, cardboard tube)?'" In the Life Science Module,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			What Do Plants and Animals Need to Live? Lesson 7: You Get What You Need, the student objective for the Checkpoint Assessment is to develop and use models (SEP, Developing and Using Models) to show how caterpillars' webs (CCC, Systems and System Models) help them get what they need to live and grow (DCI, K.ESS3.A.a). The teacher is provided guidance to assess students' responses in their STEM Notebooks as they examine caterpillar card images and respond to the question, "How does the web help?" Students draw a model of how caterpillars use webs to get what they need in their habitat. Students also participate in a class discussion, where the teacher is guided to analyze student responses to assess student mastery. The teacher is guided to assess students' models to see how students incorporated the CCC, System and System Models, into their STEM Notebook entries. The Look For guidance states, "Students' drawings show relationships between different parts of the natural world and the caterpillars webs and how they work together." Likewise, the rubric provides Look For statements for each the assessed dimensions.

FINAL EVALUATION
Tier 1 ratings receive a "Yes" for all Non-Negotiable Criteria and a "Yes" for each of the Additional Criteria of Superior Quality.
Tier 2 ratings receive a "Yes" for all Non-Negotiable Criteria, but at least one "No" for the Additional Criteria of Superior Quality.
Tier 3 ratings receive a "No" for at least one of the Non-Negotiable Criteria.

Compile the results for Sections I and II to make a final decision for the material under review.

Section	Criteria	Yes/No	Final Justification/Comments

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
I: Non-Negotiable Criteria of Superior Quality[2]	1. Three-dimensional Learning	**Yes**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of the materials engage students in integrating the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) to support deeper learning.
	2. Phenomenon-Based Instruction	**Yes**	Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time. Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. However, materials do not provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.
	3. Alignment and Accuracy	**Yes**	The majority of the Louisiana Student Standards for Science are incorporated to the full depth of the standards. The materials cover all parts of the Louisiana Science Standards and integrate the Science and Engineering practices, Disciplinary Core Ideas and the Engineering, Technology, and Applications of Science (ETS) and Crosscutting Concepts. The total amount of

[2] Must score a "Yes" for all Non-Negotiable Criteria to receive a Tier 1 or Tier 2 rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			content is viable for a school year. The Lesson Planners provide suggested times for completing lessons within each module. The science content is accurate, up-to-date, and aligned with the most current and widely accepted explanations. No evidence of incorrect or out of date science explanations could be found. Instructional materials spend minimal time on content outside of the course, grade, or grade-band.
	4. Disciplinary Literacy	**Yes**	Students regularly engage in speaking and writing about scientific phenomena and engineering solutions using authentic sources. Materials address the necessity of using scientific evidence to support ideas. Materials include variability in the tasks that students are required to execute. Within each module, students are asked to produce and revise models of the anchoring phenomenon.
II: Additional Criteria of Superior Quality[3]	5. Learning Progressions	**Yes**	The overall organization of the materials and the development of the disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units and are organized to support learning through a natural progression. Students apply grade-appropriate mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills that go beyond the Louisiana Student Standards for Mathematics for Kindergarten.

[3] Must score a "Yes" for all Additional Criteria of Superior Quality to receive a Tier 1 rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	6. Scaffolding and Support	**Yes**	Materials include separate teacher support resources. Support materials include scientific background knowledge, support in three-dimensional learning, learning progressions, strategies for addressing diverse emerging conceptions, guidance targeting speaking and writing in the science classroom, three-dimensional strategies sections that detail explicit techniques for highlighting SEPs, DCIs, and CCCs further, and sample prompts and conversation guides for class discussions. Support also includes teacher guidance in the materials' approach to phenomenon-based instruction and provides explicit guidance on how the materials address, build, and integrate the three dimensions. Teacher resources include educative resources that are designed to promote teacher learning and support the wide range of teachers who use the materials. Materials provide support for diverse learners, including English Learners and students with disabilities, are provided.
	7. Usability	**Yes**	Text sets (when applicable), laboratory, and other scientific materials are readily accessible through vendor packaging or certified partners. Materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment.
	8. Assessment	**Yes**	Multiple types of formative and summative assessments are embedded into unit materials and allow teachers to evaluate student progress toward demonstrating standards.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Assessment items and tasks are structured on integration of the three dimensions and include opportunities to engage students in applying understanding to new contexts. Scoring guidelines and rubrics align to performance expectations, and incorporate criteria that are specific and observable. However, in the Kindergarten curriculum there are specific Look For statements in the Summative Assessment Tables, but no provided methods for tracking individual student data and progress towards mastery of performance expectations.
FINAL DECISION FOR THIS MATERIAL: **Tier 1, Exemplifies quality**			

Reviewer Information

Instructional Materials Review

Instructional materials are one of the most important tools educators use in the classroom to enhance student learning. It is critical that they fully align to state standards — what students are expected to learn and be able to do at the end of each grade level or course — and are high quality if they are to provide meaningful instructional support.

The Louisiana Department of Education is committed to ensuring that every student has access to high-quality instructional materials. In Louisiana, all districts are able to purchase instructional materials that are best for their local communities since those closest to students are best positioned to decide which instructional materials are appropriate for their district and classrooms. To support local school districts in making their own local, high-quality decisions, the Louisiana Department of Education leads online reviews of instructional materials.

Instructional materials are reviewed by a committee of Louisiana educators. Teacher Leader Advisors (TLAs) are a group of exceptional educators from across Louisiana who play an influential role in raising expectations for students and supporting the success of teachers. Teacher Leader Advisors use their robust knowledge of teaching and learning to review instructional materials.

The 2024-2025 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: Acadia, Ascension, Avoyelles, Bienville, Bossier, Caddo, Calcasieu, CSAL, East Feliciana, East Baton Rouge, Hynes Charter School Corporation, Iberia, Iberville, Jefferson, Lafayette, Lincoln, Livingston, LSU Laboratory School, Natchitoches, Ouachita, Plaquemines, Richland, St. Charles, St. Landry, St. Mary, St. Tammany, Tangipahoa, Terrebonne, University View Academy, West Baton Rouge, and Zachary Community Schools. This review represents the work of current Louisiana educators with experience in grades K-8.

Appendix I.

Publisher Response

The publisher had no response.

Appendix II.

Public Comments

There were no public comments submitted.