DEPARTMENT of EDUCATION
Louisiana Believes

Instructional Materials Evaluation Tool for Alignment in Science Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

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: **PhD Science**

Grade/Course: **K-5**

Publisher: **Great Minds PBC**

Copyright: **2018, 2019, 2021**

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

Tier I, Tier II, Tier III Elements of this review:

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

Each set of submitted materials was evaluated for alignment with the standards beginning with a review of the indicators for the non-negotiable criteria. If those criteria were met, a review of the other criteria ensued.

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.

Click below for complete grade-level reviews:

Grade K (Tier 1) Grade 1 (Tier 1) Grade 2 (Tier 1) Grade 3 (Tier 1) Grade 4 (Tier 1) Grade 5 (Tier 1)

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Strong science instruction requires that students:
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Title: **PhD Science** Grade/Course: **K**

Publisher: **Great Minds PBC** Copyright: **2021**

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

Tier I, Tier II, Tier III **Elements of this review:**

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
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4. Disciplinary Literacy (Non-negotiable)	
5. Learning Progressions	
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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 yellow. 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 teach the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) in an integrated manner 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 materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. In Module 1: Weather, Lesson 17, students examine and analyze local weather data gathered from morning, afternoon, and night for five days (SEP, Using Mathematics and Computational Thinking and Planning and Carrying Out Investigations). Students analyze the data to determine Patterns (CCC) in how the temperature changed throughout the day (DCI, LE.ESS2D.a). Students then use their observations of the patterns in temperature changes to make a prediction of how the temperature may change throughout the next day. In Lesson 18, students continue to engage in analysis of weather data by analyzing temperature changes over the course of a month. Students sort colored squares, each representing a temperature range, into rows ranging from very hot to very cold. Students count (SEP, Using Mathematics

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			and Computational Thinking) to look for Patterns (CCC) in weather data for the first month of school. Students do a similar analysis with weather conditions (sunny, cloudy, rainy, etc.) in Lesson 19. Students organize the data into a monthly weather summary that shows the weather conditions that were most common during the month (DCI, LE.ESS2D.a). As the lesson continues, students summarize monthly weather data and look for long-term Patterns throughout the year. In Module 2: Pushes and Pulls, Lessons 4-6, students use a set of toys to investigate (SEP, Planning and Carrying Out Investigations) how an object starts moving due to a push or pull (DCI, LE.PS2A.b; CCC Cause and Effect). Students record observations and create a Push/Pull chart (SEP, Analyzing and Interpreting Data). Students then identify pushes and pulls in other situations and draw models to represent their observations (SEP, Developing and Using Models). Students consider Cause and Effect (CCC) relationships between the observed pushes and pulls, develop a class anchor chart of examples, and view videos to recognize the pattern that pushes and pulls cause objects to move (DCI, LE.PS2A.b). In Module 4: Environments, Lesson 3, students discover that wiregrass is an important source of food and water (DCI, LE.ESS3A.a) for gopher tortoises. Students compare two forest environments by watching a video and

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			building models (SEP, Developing and Using Models), and they start to think about which environment is better for wiregrass. In Lesson 4, students discover that wiregrass grows best in environments where it receives direct light, and they use forest models (SEP, Developing and Using Models) to investigate which environment supplies the light wiregrass needs to thrive (CCC, Systems and Systems Models). Students make measurements (SEP, Planning and Carrying out Investigations) and note the pattern (CCC, Patterns) indicating that more sunlight can reach wiregrass in environments where the trees are far apart.
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 a majority of the time. The materials begin with an anchor phenomenon to spark student interest for each module, and students engage with investigative phenomena throughout sets of lessons within modules to support sensemaking of the anchor phenomenon. The investigative phenomena (Concept Focus Questions) for each module provides opportunities for students to generate questions and define solutions to problems as they work individually and in groups to explore the anchor phenomenon in depth. In Module 1: Weather, students are introduced to the phenomenon of the cliff dwellings at Mesa

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			Verde by observing photographs of the National Park. This anchor phenomenon introduces students to the module’s Essential Question, “How did the cliff dwellings at Mesa Verde protect people from the weather?” This sets the stage for students to ask questions which lead to the three Concept Focus Questions they explore throughout the module: “What is Weather?” “What does weather data reveal?” and “How does severe weather affect us?” As students engage with text, data, media, and hands-on investigations throughout the module, students begin to establish an enduring understanding of weather and its effects. In Lesson 3, students consider how the weather can affect their choices as they observe the day’s weather and determine various activities that they can do in that kind of weather. Students use their observations to develop questions and make connections to the Mesa Verda peoples’ use of daily weather patterns when building their dwellings. In Lessons 4-7, students engage in a variety of investigations as they observe, measure, and record daily weather. By Lesson 11, students develop an understanding of how weather affects different materials and apply this understanding to determine how shelters can protect people from weather. Students revisit the anchor phenomenon by observing weather at Mesa Verde and discuss parts of the cliff

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			dwelling that protect people from types of weather, such as sunlight and wind. In Lessons 12-16, students apply their understanding of weather and the effects of sunlight to design a shelter that protects people from weather. By the end of Lesson 21, students learn that observing weather over time can reveal patterns that help predict weather. They apply this understanding to the anchor phenomenon by determining how people may have used the cliff dwellings to protect themselves from the weather at various times of the day. In Lesson 27, students observe and analyze severe weather data from Mesa Verde and discuss how the people of Mesa Verde may have used patterns in weather to make predictions and protect themselves from severe weather. In Module 4: Environments, students examine a photograph of a gopher tortoise, a map of North America, and a video of a longleaf pine forest. As students begin to discover what gopher tortoises need to live, they are introduced to the Essential Question, "Why are gopher tortoises disappearing?" Focus Concept 1, Lessons 1-10, is driven by the Focus Question: "How do plants and animals change their environment?" Throughout the first sequence of lessons, students engage in activities and investigations such as developing a model to compare two forest environments and determine whether the amount of light

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			can impact wiregrass growth (Lesson 4), as well as making observations of the tortoises building burrows for shelters which may sometimes also be used by other animals (Lessons 7-8). Students use their knowledge to regularly augment and revise their anchor models to represent their new knowledge. Focus Concept 2, in Lessons 11-17, is driven by the Focus Question, "What happens when humans take resources from a longleaf pine forest?" In this lesson sequence, student activities and investigations, such as discussing the possibilities for humans to restore longleaf pine forests (Lesson 12), and understanding how fire affects the plants and animals that live there (Lesson 14), drive the lesson. The module closes with students participating in a Socratic seminar focused on describing the anchoring phenomenon.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **3. ALIGNMENT & 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**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards. For example, in Module 1, Lessons 17-20, students analyze weather data to answer the phenomenon question, "What can we find out by looking at weather data?" In Lesson 17, students analyze morning, afternoon, and night temperature data to identify Patterns (CCC) in daily temperature. In Lessons 18-19, students use counting and numbers (SEP, Using Mathematics and Computational Thinking)

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			to develop a summary of one month's weather data, which they revisit at the end of the school year when they look for long-term weather patterns (DCI, LE.ESS2D.a). In Lessons 25-26, students investigate different kinds of severe weather and explore the ways in which people prepare for and respond to severe weather. In Lesson 25, students use counting and numbers (SEP, Using Mathematics and Computational Thinking) to identify and describe Patterns (CCC) that reveal that some kinds of severe weather are more likely than others in a given area (DCI, LE.ESS3B.a). The integration of the three dimensions provides the opportunity for students to gain a deep understanding of LSSS K-ESS2-1, K-ESS3-2, K-PS3-1, and K-PS3-2. LSSS K-PS2-1 is fully addressed in Module 2. In Lesson 4, students explore ways to move different objects across a sheet of chart paper in small groups and then classify the movement of objects in a class anchor chart as a push or a pull (DCI, LE.PS2A.b). In Lesson 5, students work with a partner to explore and identify pushes and pulls around the classroom and share their observations to build an understanding that events have causes which generate observable patterns (CCC, Cause and Effect). In Lesson 7, students conduct an investigation to figure out how to move an object at different speeds using a ball (SEP, Planning and Carrying

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			Out Investigations). In Lesson 11, students record their investigation results after placing tugboats around the cargo ship, using symbols to indicate where they applied pushes and pulls to turn the cargo ship (DCI, LE.PS2A.a). LSSS K–LS1-1 is fully addressed in Module 3. In Lesson 4, students view two images of palm trees in the desert, then make observations and generate questions to determine why some palm trees are alive in one picture but appear dead in a second picture. Students use their observations to identify what plants need to live and grow (DCI, LE.LS1C.a). They later apply their ideas to develop an investigation using bean plants. In Lesson 7, students make observations of bean plants and analyze the data (SEP, Analyzing and Interpreting Data) to compare the health of plants that received different amounts of water and sunlight. In Lesson 8, students apply the class claim about what bean plants need to survive (water and sunlight) and use evidence from their investigation of the needs of other plants, including the palm trees observed in Lesson 4. Students sort healthy and unhealthy plant cards to consider the needs of all plants and classify based on healthy and unhealthy (CCC, Patterns). Students investigate animal needs in Lessons 14 -16 by exploring the Concept Focus Question, “What do animals need to live?” Students consider whether animals in other

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			environments need the same resources as animals in deserts. Students analyze observations of various animals to identify patterns (SEP, Analyzing and Interpreting Data), then use the patterns as evidence (CCC, Patterns) to support the claim that animals need food, water and shelter to live (DCI, LE.LS1C.a, LE.ESS3A.a).
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	All reviewed 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.
	3c) 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 grade or grade-band. Instructional materials consistently appear focused on the Grade K standards and within the K-2 grade-band.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **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 increase in higher grade levels and courses.	**Yes**	Not applicable to this grade level.

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writing to develop scientific literacy. ☒ Yes ☐ No	**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. The modules provide regular opportunities for students to ask, organize, and refine questions using the Driving Question Board. Additionally, the materials promote speaking about scientific ideas through discussion strategies, such as Socratic Seminars. Student Science Logbooks provide students with a place to record observations and communicate scientific thinking supported by evidence. In Module 2: Pushes and Pulls, Lesson 4, students record their observations of how an object started moving, identify the action as either a push or a pull, and orally demonstrate an understanding of what caused the object to move. They use these observations as evidence to explain the relationship between a push or a pull and the object's movement. In Lessons 17-20, students complete an Engineering Challenge by applying the knowledge gained about pushes and pulls and utilizing the engineering design process to develop a dock cushion and help a tugboat stop close to its dock. Students test different materials and use their collected data in their dock cushion designs to predict the effectiveness of their cushions by analyzing their observations. Students

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			then test their designs and reflect on how to improve their designs and conduct more tests. Students finish the challenge by sharing their final cushions with the class, analyzing their data by comparing numerical results, and identifying which materials work best, using evidence to support their ideas. In Module 3: Life, Lessons 4-8, students complete a Science Challenge to identify the needs of bean plants for living and growing. After completing the investigation, students compose a claim about the needs of bean plants and develop an investigation to test how different amounts of water and sunlight affect bean plants' growth. After implementing their plan, students use their observations as evidence to support their claim from the beginning of the Science Challenge. Lessons 17-18 focus on whether animals also need air to live. Students watch videos of various animals and gather evidence to support a claim about whether animals need air to live. In Module 4: Environments, Lessons 3-5, students learn that wiregrass is an important food source for gopher tortoises. They use forest models to investigate which environment has the amount of light wiregrass needs. Students use evidence from their investigation to start a class anchor chart. At the end of the module, students participate in a Socratic Seminar. They use their learning from the module to answer the Essential

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			Question, "Why are gopher tortoises disappearing?" Students are encouraged to refer to the class and student anchor models, the anchor chart, and other classroom resources to support their discussion. During the activity, the materials guide students to ask for evidence and pose questions to extend the conversation.
	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**	There is variability in the tasks that students are required to execute. Throughout the materials, students are regularly engaged in a variety of tasks such as modeling phenomena, conducting investigations to explain phenomena, and designing solutions to problems. In Module 1: Weather, students complete a variety of tasks as they investigate different facets of weather. In Lesson 3, students observe the weather outside and draw an activity they could do in the current weather. Students use these observations from the day's weather and from the anchor phenomenon to develop questions for the Driving Question Board to help them identify different parts of the weather, such as sunlight, clouds, wind, rain, snow, and temperature. In Lessons 4-7, students sort photographs of different types of cloud cover, snow, and rain and use measurements of temperature to understand how weather changes throughout a day, a month, and a year. Students apply this knowledge and use the engineering design process to develop a

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			device that measures wind. In Lesson 8, groups of students investigate how the weather can affect materials at a playground by using cardboard, a water shaker, and a flashlight to simulate rain, wind, and sun. After exploring how the materials are affected by the elements, students share their observations and post new ideas on the class anchor chart. In Module 2: Pushes and Pulls, Lessons 4-6, students investigate movement by exploring how to make various toys start to move. Students then classify these movements as pushes or pulls, make observations around the classroom to identify objects that can move using a push or pull, and draw their observations in their Science Logbooks. Students apply knowledge of pushes and pulls by revisiting the anchor phenomenon, using a water model to explain how tugboats use pushes and pulls to move a cargo ship. Lessons 17-20 focus on students following the engineering design process to develop a model of a cushion that would prevent a tugboat from bouncing too far away from its dock. Students test materials, create sketches of their dock cushions, build their cushion devices, and conduct tests to gather evidence about the effects of their designs. Throughout Module 4: Environments, students investigate the disappearance of gopher tortoises through a variety of activities. Students view videos of gopher tortoises in their natural

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			habitat, a longleaf pine forest, and consider the needs and the ways gopher tortoises (and humans) change their environment in order to survive. In Lessons 3-5, students compare two forest models by viewing videos, analyzing drawings, and building models. As students investigate and determine the needs of wiregrass, they revisit their models and add additional information to the class anchor chart. Later in Lessons 11-17, students consider how humans change the environment by reading informational texts and analyzing photographs to make observations. Students participate in class discussions to identify how taking resources from the forest changes the forest and affects plants and animals in the area.
	4d) 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 in the materials, but not taught in isolation of deeper scientific learning.	**Yes**	The 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 terms. Each module includes key terms that students learn through investigations, explanations, models, and class discussions. In Module 1: Weather, Lesson 3, students share words related to severe weather. The teacher writes these words on sticky notes, which are then placed on chart paper with the heading “Weather Words.”

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			The teacher continues to listen for words that students use to describe weather and adds these words to the chart. Students group these words and continue to use them throughout the module to describe weather. In Concept 3, students continue to use their weather words to further discuss this topic and learn the formal definition of severe weather. In Module 2: Pushes and Pulls, Lesson 4, students engage in a hands-on activity to discover how to make various toys move. Students participate in a discussion and share how they move various objects across their chart paper. After investigation, the teacher introduces a class chart with the terms, push and pull, for students to classify how they moved each toy. Students practice acting out each term and demonstrate how to move their toy using a push or a pull. In Module 4, Lessons 6, students investigate how gopher tortoises find shelter in a longleaf pine forest by first considering how the environment can be dangerous for a gopher tortoise. Students share their ideas in a class chart and develop a shelter for a gopher tortoise using materials found in the classroom. In Lesson 7, students observe gopher tortoises in their environment by viewing a video with a focus on how gopher tortoises find shelter in a longleaf pine forest. As students observe the gopher tortoises going into a

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			hole in the ground, they are introduced to the term, burrow.
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 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 lessons within and across each unit 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 to support student mastery of the Performance Expectations and prevent misunderstanding. The module lessons are organized so that Disciplinary Core Ideas, Science and Engineering Practices and Crosscutting Concepts build upon each other throughout the course of study. Each module includes a Module Map and a Building Knowledge and Skills Across Levels section that provide guidance as students incrementally build knowledge and skills associated with the SEPs, DCIs, and CCC. Throughout each module, the class creates a Driving Question Board to relate concept questions and guide upcoming lessons. The Driving Question Board helps to focus the progression of learning for the anchor phenomenon. The SEPs, DCIs, and CCC are coherently sequenced across all of the lessons and continuously reinforced throughout the modules. Lessons are organized around a

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			storyline, such as the Cliff Dwellings at Mesa Verde in Module 1: Weather. Throughout this module, students engage in activities that incorporate the three dimensions of the standards at increasing levels of complexity and sophistication as they work to answer the Essential Question: How did the cliff dwellings at Mesa Verde protect people from the weather? In Lessons 1-2, students view images of the cliff dwellings at Mesa Verde and develop an anchor model (SEP, Developing and Using Models) of a cliff dwelling to compare and describe (CCC, Scale, Proportion and Quantity) how people inside or outside the dwelling may have experienced different kinds of weather (DCI, LE.ESS2D.a). In Lesson 3, students compare their drawings of that day's weather and generate questions (SEP, Asking Questions and Defining Problems) to build a Driving Question Board, which guides student exploration throughout the module. These three lessons lay the foundational pieces for the module so that students can build understanding as they move through each subsequent lesson. Students return to the anchor model to include supporting evidence for their explanations; they also return to the Driving Question Board multiple times throughout the module to check their progress. By Lessons 10-11, students demonstrate their understanding of the warming effect of sunlight (DCI,

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			LE.PS3B.a) to determine that, on a hot day, people at Mesa Verde would have been warmer on top of the mesa than inside a cliff dwelling (CCC, Scale, Proportion and Quantity). Students also use the anchor model to investigate the effects of various parts of weather and to compare (SEP, Planning and Carrying Out Investigations) how different parts of the Mesa Verde cliff dwellings would have protected people from those parts of weather. Finally, students extend their understanding of weather and patterns as they learn about severe weather. By observing examples of severe weather (DCI, LE.ESS3B.a) and asking questions (SEP, Asking Questions and Defining Problems) about blizzards, hurricanes, and tornadoes, students develop an understanding that severe weather typically involves more intense rain, heavier snow, or stronger wind than everyday weather (CCC, Scale Proportion and Quantity). In Module 3: Life, students explore the anchor phenomenon, life in the Mojave Desert. In Lessons 1-3, students develop questions (SEP, Asking Questions and Defining Problems) to help create and refine a model (SEP, Developing and Using Models) that represents the living and nonliving parts of each desert environment (DCI, LE.LS1C.a). After making observations (SEP, Analyzing and Interpreting Data) and conducting investigations (SEP, Planning and Carrying

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			out Investigations) in Lessons 4-8, students describe Patterns (CCC) of what plants and animals need to survive. Then, in Lessons 9-12, students use their model to determine why (SEP, Constructing Explanations and Designing Solutions) different environments have varying species of plants and animals. In Lessons 13-19, students develop an enduring understanding that plants and nonhuman animals need certain resources to live and grow (SEP, Engaging in Argument from Evidence) and can obtain these resources from their environments (DCI, LE.ESS3A.a). Students also determine that humans rely on natural resources to meet their needs (CCC, Systems and System Models) in Lessons 20-26.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's 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 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 are regularly called to apply mathematics skills and understanding appropriately in the context of their learning. For example, in Module 1: Weather, Lesson 4, students sort weather cards by the amount of cloud cover depicted in each picture and then by the type of weather that occurs. This supports LSSM K.MD.B.3 (students sort shapes based on various attributes). In Module 2: Pushes and Pulls, Lesson 7, students compare measurable attributes

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			as they describe the movement of the ball as faster in one situation and slower in another. This supports LSSM K.MD.A.2, as students compare two objects with a measurable attribute in common to see which object has more of or less of the attribute and describe the difference. In Module 3: Life, Lesson 9, students analyze rainfall data for Twentynine Palms (Lesson 9 resource). Students compare the number of days having rainfall in each month, connecting to LSSM K.CC.C.6 in which students compare the number of objects in a group as greater than, less than, or equal to the number of objects in another group. In Module 4: Environments, Lesson 11, students decide whether cutting down longleaf pines and removing wiregrass helps or hurts certain plants and animals. Students apply their classification skills by using knowledge about the organisms' survival needs, rather than numerical or physical attributes, to sort the organisms into three given categories, connecting to LSSM K.MD.B.3.
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.	**Required** **6a)** There are separate **teacher support** materials including: scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials including scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them. Within each Module Overview and Concept, support materials include: a Teacher Background section that includes scientific background about

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			the Disciplinary Core Ideas of the unit, a 3-D Strategies section that details explicit techniques for highlighting SEPs, DCIs, and CCCs, and sample prompts and conversation guides that elicit class discussions. Each Module includes a Teacher Edition that provides detailed information, such as a Module Overview, detailed lessons, Appendices for Module Resources, Module Storyline, Module Glossary, Domain-Specific Words, General Academic Words, and Spanish Cognates. The Teacher Note sections offer guidance to teachers in the form of implementation strategies to engage student thinking, as well as models explaining how students should respond to certain questions or activities in lessons. The Introduction provides the Essential Question of the module, along with an overview of the Concept Focus Questions and lessons that guide student learning. Additionally, each Module Overview provides a detailed summary of how the instructional materials flow between Concepts and Lessons and how materials are organized to ensure students master the connected Performance Expectations based on the standards addressed in the Module. The Module Map highlights the Focus Question for each Concept, the Science Topic and Phenomenon Question Addressed, the Student Learning Objective for each lesson within each Concept, and the Performance Expectation addressed.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			The Teacher Edition also provides an overview of how the three dimensions are addressed within the Module and in-depth explanations of how the materials build knowledge and skills across levels. The Module also provides teachers with additional sources for reading and building deeper background knowledge of the anchor phenomenon. Each lesson provides conversation guides, sample scripts, student look-fors, rubrics, and exemplar student responses. At the end of each module's Teacher Edition, appendices provide teachers with support before and during instruction. Appendix A, Module Resources, includes a set of lesson-specific resources to aid instruction, such as full-size photographs, informational texts, investigation procedure sheets, materials preparation, and supplemental information. Appendix B, Module Storyline, includes a more detailed version of the Module Map in the Module Overview that summarizes the progression of concepts in the module. Appendix C, Module Glossary, includes grade-level appropriate definitions for new terms in the module and the lesson in which the definition appears. Appendix D, Domain-Specific Words, General Academic Words, and Spanish Cognates, includes a list of key terms in the module and their Spanish cognates to support English language development.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. The Module Overviews include a pacing guide with alternative suggestions for differentiation and diverse learner supports promoting equitable participation. The call out boxes in lessons of all modules contain notes on differentiation strategies the teacher can incorporate to support learners who may need additional support or who need more of a challenge. The guidance assists teachers in deepening their knowledge of science content, pedagogy, and the progression of student learning. Each unit provides a Module Glossary with grade-level appropriate descriptions of the module terminology. The glossary is differentiated by student tiers and contains Domain-Specific Words, General Academic Words, and Spanish Cognates to support English Language Learners. For example, in Module 1: Weather, Lesson 3, a differentiation note regarding the Sort Outdoor Activity Cards addresses student equity. In the activity, students sort pictures of activities that can and cannot be done outside on a particular day based on the weather. The differentiation note suggests that the teacher plays videos of people participating in the activities found on the picture cards to support students who may not have personal experience with the depicted activities. In Module 2:

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Pushes and Pulls, Lesson 23, the materials suggest that English learners may benefit from additional scaffolding in connecting causes with their effects. The teacher can consider providing a sentence frame such as the following: A object (cause) made the (effect). In the same module, Lesson 11 suggests an extension as an additional challenge for successful groups. The extension note suggests that these groups "can carry out the investigation with additional obstacles in the harbor, such as boats made of clay." In Module 4: Environments, Lesson 6, the teacher and students develop a class anchor chart to identify dangers in the forest. Three Teacher Notes highlight information for teachers to consider, emphasizing connections to past learning from prior lessons in Module 3 to the information presented in this lesson. Additional notes suggest teachers group similar dangers together within the class chart and leave space for additional dangers that may be considered in future lessons. Also, a differentiation note exists for teachers to consider adding drawings to the class chart to represent humans, other animals and weather.
7. USABILITY: Materials are easily accessible, promote safety in the science classroom, and are viable for implementation given the length of a school year.	**Required** **7a)** Text sets (when applicable), laboratory, and other scientific materials are **readily accessible** through vendor packaging.	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The online teacher's manual may be downloaded as a PDF file or used online. The modules contain the information required to teach the lesson,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			including links to relevant videos and reading materials. The Implementation Guide states that Materials Kits can be purchased directly from the vendor and contain all necessary supplies. The kits are organized by Module, and Refill Kits can be purchased for consumable items. The Teacher's Edition contains a copy of all resources organized by lesson. The Knowledge Deck and Posters are available for purchase through the Vendor's website, as well.
	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**	The 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 safety contract and quiz are included in Appendix A of Module 1. General safety guidelines are provided at the start of each module and include safety measures, such as students wearing safety goggles during investigations involving equipment, and students never placing investigative materials in their mouths. Throughout the modules, students participate in several hands-on investigations that require teachers to review safety guidelines prior to the start of the lessons. For example, in Module 1: Weather, Lessons 12-16, Engineering Challenge, students apply their understanding of the warming effect of sunlight to solve a problem. After

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			working in pairs to develop and plan their shelter, they test different materials to identify which are best for creating shade. Then they use the materials they selected to build, test, and improve a model shelter. The materials suggest students wear safety goggles throughout the activity and be mindful of the direction in which students point their flashlights. Module 2: Pushes and Pulls, Lesson 15, involves a hands-on investigation where students explore simultaneous pushes between a pair of objects. Students work in pairs to push their hands against each other and explore forces pushing against one another. A safety note is included in this lesson and provides safety considerations for teachers implementing this activity in the classroom which states, "Do not push too hard against another student's hand. Push only into each other's open hands. Do not touch any other part of another student. Remain seated throughout the activity."
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. There are four modules within the grade level. Each module includes between 23 and 30 lessons which are approximately thirty-five minutes in length but may extend one class period. Additionally, extension activities are provided within units to deepen understanding, as time permits. Module 1 contains 30 lessons, Module 2 includes 23 lessons, Module 3 includes 29 lessons, and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Module 4 contains 28 lessons. There are 110 lessons in total, which allows teachers flexibility with time and accounts for interrupted days that may occur during the school year.
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 (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Multiple types of formative and summative assessments are embedded into the materials and assess the learning targets. The modules contain a variety of performance-based tasks, investigations, and projects in which students design solutions to real-world problems. Formative assessment questions are embedded in lessons and include nonverbal signaling, teacher observation, and Conceptual Checkpoints. Conceptual Checkpoints assess student proficiency of the standards identified in each Concept. There is one checkpoint per concept, and evaluation guidance is included. Summative assessments include performance tasks and End-of-Module Assessments. For example, each module concludes with either an Engineering Challenge or a Science Challenge to assess students' ability to apply conceptual knowledge to solve a real-world problem. Each module provides an End-of-Module Assessment that provides students the opportunity to demonstrate the knowledge and skills they have acquired throughout the module in the context of one or more phenomena. There is one assessment per module, and rubrics are provided. For example, in Module 1:

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Weather, Lesson 2, teachers formatively assess student understanding as students use nonverbal signals to agree or disagree with shared student responses. In addition, students develop an anchor model that represents a Mesa Verde cliff dwelling. They update the model throughout the module and use the model to answer the Essential Question of the Module. The teacher is provided guided questions to check for student understanding such as, "How is the model like a cliff dwelling?" and "How is the model different from a cliff dwelling?" In Module 2: Pushes and Pulls, Lesson 9, students complete a Conceptual Checkpoint in which they use their Concept 1 learning to explain movement in the context of a skateboard race. The teacher displays the photograph of children with a skateboard and the skateboard race diagram (Lesson 9, Resource B). The teacher explains to students that it shows the race setup, distributes a copy of the Conceptual Checkpoint (Lesson 9, Resource C) to each student, and reads the first question aloud. After reading the second question aloud, the teacher tells students to circle the picture that shows a push's effect. Finally, the teacher reads the third question aloud and is given the option to meet individually with students as they write their oral responses at the end of the challenge for each module; rubrics are

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			provided. In Module 3: Life, Lessons 4 through 8, students participate in a Science Challenge in which they investigate what bean plants need to live and grow. Students plan an investigation to test the effects of water and light on bean plants. They make and record observations, then analyze the data to develop an evidence-based claim about the needs of bean plants. Throughout the challenge, the teacher uses the provided guidance and questions to check for understanding, such as "Note how students describe the next step of the investigation, and listen for evidence that they understand how this step will determine what bean plants need to live." In Module 4: Environments, students participate in a Debrief End-of-Module Assessment to check their understanding of how the DCIs and CCCs of the unit are connected. The materials provide suggestions for teachers to facilitate this discussion with the students.
	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 End-of-Module Assessments give students opportunities to demonstrate new knowledge and skills acquired throughout the module in the context of one or more new phenomena to deepen understanding while using the Science and Engineering Practices (SEP) to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			fully integrate their understanding of the Disciplinary Core Ideas (DCI) and the Crosscutting Concepts (CCC). Teachers are provided with Sample Student Responses and Rubrics to assess student learning. For example in Module 1: Weather, Lessons 12-16, students participate in an Engineering Challenge to create a shelter that helps archeologists feel cooler when they are working in the sunlight. This challenge incorporates the use of the engineering design process and the three dimensions. During the challenge, students apply knowledge gained from the module as they engage in Developing and Using Models (SEP) in their plans to protect archeologists from the sun (DCI, K-PS3.b). Students determine that the shelter would help workers feel cooler (CCC, Scale, Proportion, and Quantity) in the shade when compared to working in the hot sun. A rubric is provided for teachers to assess student performance in their demonstration of the standards addressed in the Engineering Challenge. In Module 2: Pushes and Pulls, the End-of-Module Assessment, students apply their knowledge of pushes and pulls to explain how people use pushes and pulls to play carnival games. The teacher uses the End-of-Module Assessment Rubric to assess student mastery of the performance standards and three-dimensional learning. In Question 2, students analyze data in a chart (SEP, Analyzing and Interpreting

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Data) to make comparisons (CCC, Scale Proportion, and Quantity) and determine which child used stronger pulls (DCI, LE.PS3C.a) in a race. In Module 3: Life, the End-of-Unit Assessment includes questions that integrate the application of the three dimensions. Question 2b requires that the student uses pictures as evidence (SEP, Constructing Explanations and Designing Solutions) to select the claim that mule deer eat plants (DCI, LE.LS1C.a; CCC, Patterns).
	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, observable, and measurable. Each module contains a Science or Engineering Challenge and an End-of-Unit Assessment to assess student knowledge. Both items include rubrics with specific, observable, and measurable criteria for teachers to assess student performance expectations for the specified standards addressed. The rubric lists each standard, DCI, SEP, and CCC associated with each assessment item, along with an example of a "correct or reasonable response with sufficient detail or evidence." For example, Question 1 of Module 1: Weather, End-of-Module Assessment asks students to watch a video of a blizzard, make observations (SEP, Planning and Carrying Out Investigations), and draw a picture to show how a blizzard warning might be communicated to the community (DCI,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			LE.ESS3B.a). A rubric is provided to assist teachers in scoring each student's work and describes evidence of student work that meets expectations. On Question 3a of Module 2: Pushes and Pulls, End-of-Module Assessment, students watch a video and respond to the Question, "Did the wall push or pull on the ball to stop it?" Students select push or pull and demonstrate their understanding that "pushing or pulling on an object can change the speed or direction of its motion and can start or stop it" (DCI, LE.PS2A.b). Students record information (SEP, Analyzing and Interpreting Data) based on their observations and recognize how events have causes that generate observable patterns (CCC, Cause and Effect, Patterns). An answer key and a scaled rubric are provided for the End-of-Module Assessment for teachers to record and assess student responses. On Question 3 of Module 3: Life, End-of-Module Assessment, students choose a claim regarding the natural resources of Mesa Verde and support their chosen claim with evidence from analyzing an image (SEP, Engaging in Argument from Evidence). Students identify how humans can get what they need from their environment using natural resources (DCI, K-ESS3-1) and, through their evidence, explain how systems in the natural world have parts that work together (CCC, Systems and System Models). An answer

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			key with student exemplars and a scaled rubric are provided for teachers to record and assess student responses

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
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 materials integrate 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. Phenomena in the form of common experiences at the beginning of each unit spark students to generate questions and define problems to motivate learning about the core ideas of the unit, and this provides purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon.

[2] Must score a "Yes" for all Non-negotiable Criteria to receive a Tier I or Tier II rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	3. Alignment & Accuracy	**Yes**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards. Instructional materials spend minimal time on content outside of the 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. There is variability in the tasks that students are required to execute. Throughout the materials, students are regularly engaged in a variety of tasks such as modeling phenomena, conducting investigations to explain phenomena, and designing solutions to problems. The 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 the students have first had the opportunity to build conceptual understanding of the terms.
II: Additional Criteria of Superior Quality[3]	5. Learning Progressions	**Yes**	The lessons within and across each unit 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

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and engage in a coherent progression of learning that is coordinated over time, clear, and organized to support student mastery of the Performance Expectations and prevent misunderstanding. Students apply 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 are called to apply mathematics skills and understanding appropriately in the context of their learning.
	6. Scaffolding and Support	**Yes**	There are separate teacher support materials including scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them. Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment. The total amount of content is viable for a school year.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	8. Assessment	**Yes**	Multiple types of formative and summative assessments are embedded into the content materials and assess the learning targets. 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, observable, and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

DEPARTMENT of EDUCATION
Louisiana Believes

Instructional Materials Evaluation Tool for Alignment in Science Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

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: **PhD Science** Grade/Course: **1**

Publisher: **Great Minds PBC** Copyright: **2021**

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

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
3. Alignment & 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 yellow. 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 teach the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) in an integrated manner 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 materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. In Module 1: Survival, Lesson 16, students use observations from media to explain how animals respond to sensory information (SEP, Analyzing and Interpreting Data) and use the observed Patterns (CCC) as evidence to conclude that animals sense information in their environment. Students determine that the animals' responses help them survive (DCI, LE.LS1D.a). In Lesson 17, students analyze the ways animals sense information (SEP, Analyzing and Interpreting Data) by examining Patterns (CCC) to determine that animals have body parts capable of capturing sensory information (DCI, LE.LS1D.a). In Lesson 18, students model (SEP, Developing and Using Models) the behavior of vervet monkeys and analyze animal behaviors in sources to describe the pattern (CCC, Patterns) in which animals communicate to help themselves

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and others survive (DCI, LE.LS1D.a). In Module 2: Light, Lesson 5, students investigate a model (SEP, Developing and Using Models) of a basement during a blackout to explore object visibility when a light source is nearby. Students analyze models to identify the pattern (CCC, Patterns) indicating that objects are visible if light sources are turned on nearby. In Lesson 6, students collect and analyze data (SEP, Analyzing and Interpreting Data) to determine that objects are visible if light is illuminating the objects (DCI, LE.PS4B.b). In Lesson 7, students observe different light sources to determine that objects are also visible when they give off their own light (DCI, LE.PS4B.b). In Lesson 8, students observe photographs and videos of glow worms in New Zealand caves, use their observations (SEP, Analyzing and Interpreting Data) to determine that glow worms are light sources, and identify and explain which places on a cave wall are visible because light from glow worms illuminates the space (DCI, LE.PS4B.b). In Module 3: Sound, Lesson 11, students model sound in a concert hall to describe a pattern (CCC, Patterns) which demonstrates that people can hear sound on all sides of vibrating instruments. In Lesson 12, students make a prediction and use a model to observe that instruments sound quieter when the door is closed (SEP, Analyzing and Interpreting Data), which

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			allows students to conclude that sound travels away from a vibrating object in all directions (DCI, LE.PS4A.a). In Lesson 14, students observe a model to construct an explanation (SEP, Constructing Explanations and Designing Solutions) that sound causes (CCC, Cause and Effect) the eardrum to vibrate (DCI, LE.PS4A.a).
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 a majority of the time. The materials begin with an anchor phenomenon to spark student interest for each module, and students engage with investigative phenomena throughout sets of lessons within modules to support sensemaking of the anchor phenomenon. The investigative phenomena (Concept Focus Questions) for each module provides opportunities for students to generate questions and define solutions to problems as they work individually and in groups to explore the anchor phenomenon in depth. In Module 2: Light, students explore the anchor phenomenon, "How do puppeteers use light to tell stories during wayang shows?" Throughout the module, students engage with Concept Focus Questions, "Why do we need light to see objects?" "How does light interact with different objects?" and "How does light interact with different objects?" to support sensemaking around the phenomenon. Students begin the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			module by exploring shadows outside and by creating a model to explain why a soccer ball might not have a shadow when under a cover (Lesson 1). Following this grounding investigative phenomenon, students work as a class to contribute to an anchor model that represents what they know so far about wayang shows, including the parts that make up a wayang show. For example, as students learn about new concepts in Lessons 1 through 3, they revisit and refine a model that shows how light interacts with the parts of a wayang show. Students then share their questions about wayang shows to develop a Driving Question Board. They revisit the Driving Question Board and anchor model throughout the module to build a coherent understanding of how puppeteers use light to tell stories during wayang shows. Students are able to develop an understanding of the way light interacts with objects and how it affects what people see. For example, in Lesson 17, students use what they have learned about light to analyze materials that could be used to create a wayang screen. Students must use the knowledge gained from the module to support their claims for the material selection. At the end of the module, students use their knowledge of light interactions to explain the anchor phenomenon. In Module 3: Sound, students begin by listening to clips of instrumental music and discuss how music

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			is made. In Lesson 1, students first differentiate between instruments designed to make music and objects designed for other uses, then make observations and generate questions about these categories. This sets the stage for students to explore how the Recycled Orchestra of Cateura creates music with discarded objects and introduces students to the module's Essential Question, "How does the Recycled Orchestra make music?" Students use the Driving Question Board to ask additional phenomenon related questions and begin to develop a class anchor model, as well as to learn about the two module concepts: Making Sound (What causes sound?) and Effects of Sound (What are the effects of sound?). As students engage with text, data, media, and hands-on investigations throughout the module, they begin to establish an enduring understanding that sound is caused by vibrating objects (Lessons 8-9) and that sound can cause objects to vibrate (Lessons 14-16). Throughout the module, students regularly revisit the class anchor model and Driving Question Board to incorporate newly gained knowledge and explain how the Recycled Orchestra makes music. In Module 4: Sky, students begin by discussing modern ways of navigating (maps, compasses, etc.) as they preview the anchor phenomenon, "How did the Polynesians use observations of the Sun, stars and the Moon to navigate

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			from island to island?" In Lesson 4, students develop an initial model to explain the phenomenon. Students then develop questions to explore during the three Module Concepts: The Sun (What changes in our observations of the Sun throughout the day?), The Moon (What changes in our observations of the Moon throughout the day or night?), and The Stars (What changes in our observations of stars throughout the night?). As students engage in several investigations throughout the module, they establish an enduring understanding of how people can see the sun, stars, and moon in the sky in predictable locations and at predictable times. For example, in Lessons 9-13, students determine patterns with the sun and how that impacts the daytime length. Students consider that the Polynesians may have used the sun to help navigate and add this idea to their models. Students then make observations of a star, Arcturus, located at varying positions in the night sky at different times of the night (Lesson 17), and use their observations to support a claim as to when a Polynesian would travel (Lesson 18). In Lessons 19 -22, students observe the moon's appearance in the sky at night and during the day and use these observations to make a claim that further explains the phenomenon.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **3. ALIGNMENT & 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**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards. For example, in Module 1, Lessons 22-23, students focus on answering the Concept 3 Focus Question, "How do parents help their offspring survive?" In Lesson 22, students observe photographs to notice Patterns (CCC) of similarities and differences between plants or animals of the same kind. Students then study a photograph of a mystery animal and use their observations as evidence (SEP, Constructing Explanations and Designing Solutions) to identify the animal. In Lesson 23, students observe photographs of parents and offspring to identify Patterns (CCC) of similarities and differences. Students then use their observations to determine that young plants and animals are very much, but not exactly, like their parents (DCI, LE.LS3A.a). The knowledge they build in these lessons helps students answer the Focus Question in upcoming lessons. In Lessons 24-25, students use information from storyboards to find Patterns (CCC) in animal parent and offspring behaviors that help young offspring survive (DCI, LE.LS1B.a). In Lesson 24, students observe and evaluate information (SEP, Obtaining, Evaluating and Communicating Information) in storyboards to describe a pattern indicating that many, but not all, animal

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			parents help their offspring survive. In Lesson 25, students look at additional storyboards and, working in groups, act out scenarios of animal parent and offspring behaviors. Students then describe these behaviors to notice the pattern (CCC, Patterns) of many animal parents and their offspring engaging in certain behaviors that help the offspring survive. The integration of the three dimensions provides the opportunity for students to gain a deep understanding of LSSS 1-LS2-1 and 1-LS3-1. In Module 2: Light, students plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light (LSSS 1-PS4-3). Students complete a Science Challenge in Lessons 15-18 to explore light interactions. In Lesson 15, students observe how light travels through the screen in a wayang puppet show by viewing photographs and models to determine that varying amounts of light travel through different types of materials (DCI, LE.PS4B.b). Students further investigate this DCI in Lesson 16 by making comparisons of the ways light interacts with different materials using the following classifications: no light, some light, or all light travels through a material (DCI, LE.PS4B.b); students consider the characteristics of the materials to support their classifications (CCC, Cause and Effect). Students apply this knowledge in

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Lesson 17 to plan and carry out an investigation (SEP, Planning and Carrying Out Investigations) in which they test and select materials that would work well as a wayang screen. Students investigate and gather evidence to support their reasoning on suitable materials that can be used as a wayang screen, as long as some light can pass through the screen (CCC, Cause and Effect). In Lesson 18, students present their findings of selected materials and summarize that different materials can be used as a wayang screen (Cause and Effect, CCC). In Module 4: Sky, Lessons 19-22, students explore the movement of the Moon in the day sky and night sky, which fully addresses LSSS 1-ESS1-1. In Lesson 19, students view videos to observe the Moon (SEP, Planning and Carrying out Investigations) at daytime and nighttime on different dates (CCC, Patterns). Students determine that the Moon moves from east to west across the sky (DCI, LE.ESS1A.a). In Lesson 20, students analyze the moonrise and moonset on different dates to determine that the Moon rises and sets later on each date (SEP, Analyze and Interpret Data). In Lesson 21, students use evidence that supports a claim to construct an argument about when on a given date the Moon is in the sky. In Lesson 22, students apply their understanding of the Moon’s path (DCI, LE.ESS1A.a) to complete a Conceptual Checkpoint. During the Conceptual

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Checkpoint, students identify a piece of evidence that supports the claim that the original Polynesian navigators used the Moon to navigate east and west. Students then explain why that piece of evidence—that the Moon moves across the sky in the same way each day or night (CCC, Patterns)—supports the claim (SEP, Engaging in Argument from Evidence).
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	All reviewed 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.
	3c) 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 grade or grade-band. Instructional materials consistently appear focused on Grade 1 standards and within the K-2 grade-band.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **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 increase in higher grade levels and courses.	**N/A**	Not applicable to this grade level.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
writing to develop scientific literacy. ☒ Yes ☐ No	**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. The modules provide regular opportunities for students to ask, organize and refine questions using the Driving Question Board. Materials promote speaking about scientific ideas through discussion strategies, such as Socratic Seminars. Student Science Logbooks provide students with a place to record observations and communicate scientific thinking supported by evidence. In Module 1: Survival, students use observations to develop a class model and generate questions for the Driving Question Board to explain how animals and plants survive in a pond environment. In Lessons 4-6 students investigate how animals use their body parts to survive. In Lesson 4, students begin by generating observations through photographs and videos of herons, minnows, and porcupines living in a pond environment. Students view the videos and then use their bodies to act out their observations. Students then participate in a class discussion to identify the various body parts each animal uses to move and explain how that body part helps the animal. Students then visit animal body parts stations in small groups to analyze photographs and models and explain the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			purpose of the various animal body parts and how they function and contribute to animal survival. Students build on this knowledge in Lesson 5 by digging deeper into the Quills, Shells, and Scales station by using observations and models to classify this station as Protective Body Parts. Students record properties of the body parts (Uses, Looks, and Feels) in their Science Logbooks and use this information to explain how the properties of each body part, their functions, and how they help the animals survive. In Lesson 6, students discuss the functions of quills on porcupines and shells on crayfish for protection and the mouths on trout for eating. Students add this information to the class anchor model to explain how animals use their body parts to survive in a pond environment. In Module 3: Sound, Lessons 11-13, students explore the effects of sound from a vibrating object. Students model sound in a concert hall and make predictions about instrument sounds outside a door that is open or closed. After determining that instruments sound quieter when the door is closed, students compare this observation with their predictions to make conclusions that provide a foundation for later learning, including the idea that sound can make nearby objects vibrate. In Lesson 20, students examine photographs of people to identify the object and sound associated with each method of

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			communication: whistle - tweet, doorbell - dingdong, microphone - loud voice. This sets the stage for students to participate in Communication Device Stations. Students record observations in their Science Logbooks as they examine videos that depict a device and explain the meaning of the message the device sends and how the message is sensed, whether through seeing, hearing, or feeling. Students then review their data and use this information to determine if a communication device that only uses sound would be appropriate to use to communicate a message to a pilot.
	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**	There is variability in the tasks that students are required to execute. Throughout the materials, students are regularly engaged in a variety of tasks such as modeling phenomena, conducting investigations to explain phenomena, and designing solutions to problems. In Module 2: Light, Lessons 15-18 focus on students following the engineering design process to determine which materials could be used as screens in a wayang show. Students test materials, create sketches of their wayang screens, build their screens, and conduct additional tests to gather evidence about the effectiveness of their designs. In Lesson 20, students examine models to explain how light interacts with different objects. Students begin by examining a three-dimensional model of a wayang show with a penlight, a

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			puppet with holes, and a screen. The teacher models changing the angle of the light from the penlight, and students participate in a class discussion to explain how the direction of light affects what the audience sees. Using their knowledge of how light interacts with different objects, students complete a Conceptual Checkpoint to explain how a mirror can redirect light towards the wayang screen and allow the audience to see the shadow. Students debrief after completing the Conceptual Checkpoint and revisit the three-dimensional model with the mirror to observe light interacting with the mirror. The class revisits the Driving Question Board and identifies the questions they can now answer to help them explain the anchor phenomenon. In Module 3: Sound, Lessons 21-25, students complete an Engineering Challenge using the Engineering Design Process. Students apply their knowledge of sound and communication to develop a solution that allows the teacher to communicate with students over a distance during recess. In Lesson 21, students define the problem. In Lesson 22, students test various materials and record observations to determine which materials make the loudest sounds and how those sounds are made. In Lesson 23, students plan, develop and test their communication devices. In Lesson 24, students make improvements to their communication devices based on the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			collected data from testing. In Lesson 25, students review their quantitative data and determine whether their improvements were effective. Students then share and evaluate their communication devices with their peers through presentations. In Module 4: Sky, Lesson 3 students sort photographs of the Sun, the stars, and the moon to notice the pattern indicating that people can observe the Sun and the Moon in the day sky and stars and the Moon in the night sky. Students create a class anchor model that represents this pattern. Students then generate questions to add to the Driving Question Board.
	4d) 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 in the materials, but not taught in isolation of deeper scientific learning.	**Yes**	The 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 terms. Each module includes key terms that students learn through investigations, explanations, models and class discussions. Throughout Module 1: Survival, Concepts 1-2, students generate words related to plant and animal survival. The teacher records the terms and questions students generate on a chart so that they can fully discuss these topics in an instructional routine (Link-Up) in Concept 3 to identify relationships or connections between the key terms

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			identified in the module. In Lesson 4, students use models, observe photographs, and view videos to describe how animals use their body parts. Students initially study a heron, a minnow, and a porcupine and identify the body part each animal uses to move in a class chart. Students then visit Animal Body Parts stations and record data and observations in their Science Logbooks to explain how animals use various body parts (ie. mouth, claws, quills, beak, etc.). At the end of the lesson, students participate in a group discussion and categorize each station based on how the body parts are used. The teacher introduces the term function to explain what a body part does. This sets the stage for Lesson 5, where students identify properties of body parts and utilize the term function to make connections and describe how the body parts work. In Module 4: Sky, Lesson 2, the teacher reads a historical fiction book about Polynesian navigation. While reading, the teacher pauses on certain words and asks students if they are familiar with the terms. If not, the teacher is encouraged to provide a familiar synonym or to define the word and use it in a sample sentence. The teacher then rereads the sentence containing the word and continues reading aloud. Students apply their understanding of terms introduced in this lesson throughout the unit. In Lesson 5, students begin the

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			lesson by reviewing observations from a previous lesson on the location of the sun in the sky in both the morning and the afternoon. With the use of a compass, the class determines that the sun was located in the East in the morning and in the West in the afternoon, and students add labels to their notes. Further into the lesson, students examine sun observation cards that depict images of the sun at different times on the same day. Using chart paper, students share characteristics that all of the images contain: sky, ground, and sun. The teacher draws a line on the chart paper and introduces the term horizon, explaining that this is the area where the sky meets the ground. As students continue to analyze the movements of the sun through videos and first-hand observations, they incorporate descriptions of the changes in location of the sun in terms of how close or far it is from the horizon.
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	**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 lessons within and across each unit 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 to support student

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content complements the the [Louisiana Student Standards for Math](). ☒ Yes ☐ No			mastery of the Performance Expectations and prevent misunderstanding. The module lessons are organized so that Disciplinary Core Ideas, Science and Engineering Practices, and Crosscutting Concepts build upon each other throughout the course of study. Each module includes a Module Map and a Building Knowledge and Skills Across Level section that provide guidance as students incrementally build knowledge and skills associated with the SEPs, DCIs, and CCC. Throughout each module, the class creates a Driving Question Board to relate concept questions and guide upcoming lessons. The Driving Question Board helps to focus the progression of learning for the anchor phenomenon. The SEPs, DCIs, and CCC are coherently sequenced across all of the lessons and continuously reinforced throughout the modules. Lessons are organized around a storyline, such as life in a pond featured in Module 1: Survival. Throughout this module, students engage in activities that incorporate the three dimensions of the standards at increasing levels of complexity and sophistication. In Lessons 1-3, students identify and observe plants and animals found in a pond environment to note the pattern (CCC, Patterns) indicating that while all plants and animals have body parts, the body parts of plants and animals differ in many ways. Students use these observations to generate

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			questions (SEP, Asking Questions and Defining Problems) for the Driving Question Board and draw models to show how plants and animals use their body parts to survive (DCI, LS1A.a). These lessons lay the foundation for the module so that the students can gain knowledge as they move through each subsequent lesson to build a deeper understanding. In Lesson 10, students investigate engineering solutions that mimic the ways plants and animals use their body parts. This lesson prepares them for Lessons 11-15, as students use their knowledge of the ways in which plants and animals use their body parts and consider the properties of body parts and their functions (CCC, Structure and Function) to develop a model that represents a protective covering (SEP, Developing and Using Models). These lessons prepare students for Lessons 22-25 in which students identify the patterns (CCC) of similarities and differences between plants or animals of the same kind. Using their observations as evidence (SEP, Constructing Explanations and Designing Solutions) students analyze animals and identify Patterns (CCC) to determine that young plants and animals are very much, but not exactly, like their parents (DCI, LE.LS3A.a). At the end of the unit, students synthesize their learning from throughout the module and express their understanding of how plants and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			animals survive in their environment. In Module 2: Light, students explore the anchor phenomenon, wayang shadow puppetry. In Lessons 1-3, students develop questions (SEP, Asking Questions and Defining Problems) to help them create and refine a model (SEP, Developing and Using Models) which explains how light interacts with the parts of a wayang show (DCI, LE.PS4B.a, LE.PS4B.b). After making observations (SEP, Analyzing and Interpreting Data) and conducting investigations (SEP, Planning and Carrying out Investigations) in Lessons 4-7, students describe Patterns (CCC) indicating objects are visible when light illuminates them or when the objects give off their own light. Then, in Lessons 10-12, students use the knowledge gained from prior lessons to model how (SEP, Developing and Using Models) objects, surfaces, and light sources interact to form shadows (CCC, Cause and Effect). In Lessons 15-18, students complete a Science Challenge by Planning and Carrying Out an Investigation (SEP) and analyzing data to determine that different materials allow different amounts of light to travel through them (DCI, LE.PS4B.b). Students also determine that light interacts with various objects in different ways and describe how parts work together in systems in the natural and designed world (CCC, Systems and System Models) in Lessons 20-23. Throughout this

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			module, students develop an enduring understanding that the way light interacts with objects affects what people see.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's 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 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 Grade 1. Students are regularly called to apply mathematics skills and understanding appropriately in the context of their learning. For example, in Module 2: Light, Lesson 3, students use data representation skills to sort, organize, and justify their placement of different photographs of wayang shows into two categories. This connects to LSSM 1.MD.C.4, where students organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points; identify how many in each category; and identify how many more or less are in one category than in another. In Module 3, Lesson 2, students identify the similarities and differences between recycled and ordinary musical instruments and use the class musical instruments chart to represent the two categories of instruments. This supports LSSM.1.MD.C.4, as students organize, represent, and interpret data with up to three categories. This activity allows students to build on their previous experiences of working with data. In

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			Module 4: Sky, Lesson 10, the materials suggest that when students observe different daytime lengths, they notice the number of hours in different days. Students first recognize daytime length as a number of hours, or same-sized length units. Then, to compare daytime lengths, students practice the skill of comparing same-sized length units. This connects LSSM 1.MD.B.3, which states that students tell and write time in hours and half-hours using analog and digital clocks.
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, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials including scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them. Within each Module Overview and Concept, support materials include: a Teacher Background section that includes scientific background about the Disciplinary Core Ideas of the unit, a 3-D Strategies section that detail explicit techniques for highlighting SEPs, DCIs, and CCCs, and sample prompts and conversation guides that elicit class discussions. Each Module includes a Teacher Edition that provides detailed information, such as a Module Overview, detailed lessons, Appendices for Module Resources, Module Storyline, Module Glossary, Domain-Specific Words, General Academic Words, and Spanish Cognates. The Teacher Note sections offer guidance to teachers in the form of implementation

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			strategies to engage student thinking, as well as models explaining how students should respond to certain questions or activities in lessons. The Introduction provides the Essential Question of the module, along with an overview of the Concept Focus Questions and lessons that guide student learning. Additionally, each Module Overview provides a detailed summary of how the instructional materials flow between Concepts and Lessons and how materials are organized to ensure students master the connected Performance Expectations based on the standards addressed in the Module. The Module Map highlights the Focus Question for each Concept, the Science Topic and Phenomenon Question Addressed, the Student Learning Objective for each lesson within each Concept, and the Performance Expectation addressed. The Teacher Edition also provides an overview of how the three dimensions are addressed within the Module and in-depth explanations of how the materials build knowledge and skills across levels. The Module also provides teachers with additional sources for reading and building deeper background knowledge of the anchor phenomenon. Each lesson provides conversation guides, sample scripts, student look-fors, rubrics, and exemplar student responses. At the end of each module's Teacher Edition, appendices provide teachers with support

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			before and during instruction. Appendix A, Module Resources, includes a set of lesson-specific resources to aid instruction, such as full-size photographs, informational texts, investigation procedure sheets, materials preparation, and supplemental information. Appendix B, Module Storyline, includes a more detailed version of the Module Map in the Module Overview that summarizes the progression of concepts in the module. Appendix C, Module Glossary, includes grade-level appropriate definitions for new terms in the module and the lesson in which the definition appears. Appendix D, Domain-Specific Words, General Academic Words, and Spanish Cognates, includes a list of key terms in the module and their Spanish cognates to support English language development.
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. The Module Overviews include a pacing guide with alternative suggestions for differentiation and diverse learner supports promoting equitable participation. The call out boxes in lessons of all modules contain notes on differentiation strategies the teacher can incorporate to support learners who may need additional support or who need more of a challenge. The guidance assists teachers in deepening their knowledge of science content, pedagogy, and the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			progression of student learning. Each unit provides a Module Glossary with grade-level appropriate descriptions of the module terminology. The glossary is differentiated by student tiers and contains Domain-Specific Words, General Academic Words, and Spanish Cognates to support English Language Learners. For example, in Module 1: Survival, Lesson 23, a differentiation note regarding the Match a Plant Parent and Offspring activity provides sentence starters to help students articulate their ideas, as they identify the plant in the photograph they believe to be parent of the radish plant they examine. For example, the following sentence starters are provided: "I think the young radish plants belong to Parent ___ because…" and "I do not think the young radish plants belong to Parent ___ because…" In Module 2: Light, Lesson 8 provides a differentiation extension for students who need an additional challenge, prompting students to conduct research on glowworms in order to learn more about how their glow helps them survive. In Module 2, Lesson 23, the materials suggest that English learners may benefit from additional scaffolding when identifying parts working together in a system. Sentence frames are provided to help students formulate their responses, such as "(part) and together in a system and (part) work." In Module 3: Sound, Lesson 26, students reflect on the learning

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			process and the growth of their knowledge of the causes and effects of sound throughout the module by identifying various work products around the classroom and/or in their Science Logbooks. A differentiation note suggests providing students additional support by examining specifically paired activities to examine for evidence of student learning.
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.	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The online teacher's manual 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. The Implementation Guide states that Materials Kits can be purchased directly from the vendor and contain all necessary supplies. The Kits are organized by Module, and Refill Kits can be purchased for consumable items. The Teacher's Edition contains a copy of all resources organized by lesson. The Knowledge Deck and Posters are available for purchase through the Vendor's website, as well. Module 1: Survival requires the use of live animals in the classroom. Lesson 4: Resource A provides guidance and instructions for ordering and caring for crayfish, as well as alternative resources if live animals in the classroom are not feasible.
	Required	**Yes**	The materials help students build an understanding of standard operating

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	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.		procedures in a science laboratory and include safety guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the materials. A safety contract and quiz are included in Appendix A of Module 1. General safety guidelines are provided at the start of each module and include safety measures, such as students wearing safety goggles during investigations involving equipment, and students never placing investigative materials in their mouths. Throughout the modules, students participate in several hands-on investigations that require teachers to review safety guidelines prior to the start of the lessons. For example, Module 1 reminds teachers of safety guidelines multiple times, because students are studying and observing live animals. Activities in which students interact with live animals pose potential safety hazards; therefore, the materials remind teachers to have students wear safety goggles and use caution when handling animals. In Module 3: Sound, Lesson 7, students participate in a hands-on investigation to observe how to make sound using a straw. Prior to the activity, a safety consideration advises teachers on hygiene hazards associated with the activity and detailed guidelines to implement to ensure student safety.
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. There are four modules

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			within the grade level. Each module includes between 23 and 29 lessons which are approximately thirty-five minutes in length but may extend one class period. Additionally, extension activities are provided within units to deepen understanding, as time permits. Module 1 contains 29 lessons, Module 2 includes 23 lessons, Module 3 includes 29 lessons, and Module 4 contains 25 lessons. There are 106 lessons in total which allows teachers flexibility with time and accounts for interrupted days that may occur during the school year.
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 (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Multiple types of formative and summative assessments are embedded into the materials and assess the learning targets. The modules contain a variety of performance-based tasks, investigations, and projects in which students design solutions to real-world problems. Formative assessment questions are embedded in lessons and include nonverbal signaling, teacher observation, and Conceptual Checkpoints. Conceptual Checkpoints assess student proficiency of the standards identified in each Concept. There is one checkpoint per concept and evaluation guidance is included. Summative assessments include performance tasks and End-of-Module Assessments. For example, each module concludes with either an Engineering Challenge or a Science Challenge to assess student ability to apply conceptual

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			knowledge to solve a real-world problem. Each module provides an End-of-Module Assessment that provides students the opportunity to demonstrate the knowledge and skills they have acquired throughout the module in the context of one or more phenomena. There is one assessment per module, and rubrics are provided. For example, in Module 1: Survival, Lesson 9, students engage in a Conceptual Checkpoint to apply what they learned in Concept 1 to an animal they have not yet studied. During the Checkpoint, students view a photograph of a yellow jacket's stinger and select a model to represent the stinger. Students use the model to determine the function of the stinger and to understand how the stinger helps a yellow jacket survive. Students then respond to the Concept 1 Focus Question, "How do plants and animals use their body parts to survive in their environment." In Module 2: Light, Lesson 13, students complete a Conceptual Checkpoint in which they use their learning from Concept 1 to explain how light interacts with objects like the puppets in the wayang show. After distributing a copy of the Conceptual Checkpoint to each student, the teacher reads the questions aloud and directs students to circle the picture that shows the shadow that does not match the leather square. After reading the third question aloud, the teacher can opt to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			meet individually with students as they write their oral responses at the end of the Conceptual Checkpoint. In Module 1: Survival, Lessons 11-15, students participate in an Engineering Challenge where they apply the engineering design process to create a covering that protects scientists at a pond. Students explore human-made products that mimic the properties and functions of plant and animal body parts. Students then apply their understanding of the ways plants and animals use their body parts to develop a protective covering that protects the legs of scientists completing observations at a pond. In Lesson 12, the teacher checks for understanding as students draw and label ideas for their solution. The teacher circulates the room, checking each group to be sure students use evidence from the properties of different materials to plan their protective coverings and can justify their selections. The materials provide the teacher with the next steps, whether students cite relevant properties of the chosen materials or they struggle to find evidence to defend their selection of materials. In Module 3: Sound, students participate in a Debrief End-of-Module Assessment, a summative assessment of student knowledge regarding the connections between DCIs and CCCs in the unit. The materials provide suggestions for teachers to facilitate this discussion with the students.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	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. End-of-Module Assessments give students opportunities to demonstrate new knowledge and skills acquired throughout the Module in the context of one or more new phenomena to deepen understanding while using the Science and Engineering Practices (SEP) to fully integrate their understanding of the Disciplinary Core Ideas (DCI) and the Crosscutting Concepts (CCC). Teachers are provided with Sample Student Responses and Rubrics to assess student learning. For example in Module 2: Light, Lessons 15-18, students participate in a Science Challenge to identify materials that work well as wayang screens by exploring light interactions. This challenge incorporates the three dimensions of science, as students apply what they learn to explain the effects of using different materials as wayang screens (CCC, Cause and Effect). During the challenge, students make observations and collect data to make comparisons (SEP, Planning and Carrying Out Investigations) to determine that some materials allow light to pass through them, some materials allow only some light through, and some materials block all the light (DCI, LE.PS4B.b). A rubric is provided for teachers to assess student performance in their demonstration of the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			standards addressed in the Science Challenge. In Module 3: Sound, the End-of Module Assessment includes questions that integrate the application of the three dimensions. Question 1b requires students justify their predictions (SEP, Constructing Explanations and Designing Solutions) of whether a speaker saying a message into a cup telephone causes or does not cause (CCC, Cause and Effect) the listener to hear and understand the message (DCI, LE.PS4C.a). In the Module 4: Sky, End-of-Module Assessment, students apply their knowledge of the ways people can observe, describe, and predict patterns in the movement of the Sun, stars, and the Moon in a new phenomenon that focuses on the ways plants and animals respond to those patterns. The End-of-Module Assessment Rubric guides teachers as they assess student mastery of the performance standards and three-dimensional learning. In Question 2a, students read a claim and analyze evidence in a chart to determine whether the evidence supports the claim (SEP, Obtaining, Evaluating, and Communicating Information) that movement patterns (CCC) of the stars and the Moon move help a dung beetle roll a dung ball home (DCI, LE.ESS1A.a).
	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, observable, and measurable. Each module

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			contains a Science or Engineering Challenge and an End-of-Unit Assessment to assess student knowledge. Both items include rubrics with specific, observable, and measurable criteria for teachers to assess student performance expectations for the specified standards addressed. The rubric lists each standard, DCI, SEP, and CCC associated with each assessment item along with an example of a "correct or reasonable response with sufficient detail or evidence." For example, on Question 4a in Module 1: Survival, End-of-Module Assessment, students observe the features of a eucalyptus plant to identify Patterns (CCC) and select the appropriate matching image (DCI, LE.LS3B.a). In Question 4b, students use the pattern of common features of eucalyptus plants as evidence to construct an explanation (SEP, Constructing explanations and designing solutions) to justify their selection of the other eucalyptus plant. On Question 1a of Module 3: Sound, End-of-Module Assessment, Part A, students view a model of two students communicating using a cup and string and make a prediction (SEP) about whether people can communicate over a distance (DCI, LE.PS4C.a). In Question 1b, students justify their predictions (SEP, Planning and Carrying Out Investigations) about whether a speaker saying a message into a cup telephone causes or does not cause (CCC, Cause and Effect) the listener to hear and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			understand the message (DCI, LE.PS4C.a). An answer key and a scaled rubric are provided for teachers to record and assess student responses. On Question 2b, in Module 4: Sky, End-of-Module Assessment, students explain whether they agree with a scientist claiming that the stars and moon help the dung beetle move a dungball at nighttime. For the rubric category labeled as "correct or reasonable response with sufficient detail or evidence provided," the student must "choose a piece of evidence and explain why that evidence supports or does not support (SEP) the claim that patterns (CCC) in the way stars and the moon move help a dung beetle roll a dung ball home (DCI, ESS1.A)."

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
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 materials integrate the Science and Engineering Practices (SEP), Crosscutting

[2] Must score a "Yes" for all Non-negotiable Criteria to receive a Tier I or Tier II rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			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. Phenomena in the form of common experiences at the beginning of each unit spark students to generate questions and define problems to motivate learning about the core ideas of the unit, and this provides purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon.
	3. Alignment & Accuracy	**Yes**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards. Instructional materials spend minimal time on content outside of the 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. There is variability in the tasks that students are required to execute. Throughout the materials, students are regularly engaged in a variety of tasks such as modeling phenomena, conducting investigations to explain phenomena, and designing solutions to problems. The materials provide a coherent sequence of

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			authentic science sources that build scientific vocabulary and knowledge over the course of study. Vocabulary is addressed as needed, but only after the students have first had the opportunity to build conceptual understanding of the terms.
II: Additional Criteria of Superior Quality[3]	5. Learning Progressions	**Yes**	The lessons within and across each unit 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 to support student mastery of the Performance Expectations and prevent misunderstanding. Students apply 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 Grade 1. Students regularly are called to apply mathematics skills and understanding appropriately in the context of their learning.
	6. Scaffolding and Support	**Yes**	There are separate teacher support materials including scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them. Appropriate suggestions

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment. The total amount of content is viable for a school year.
	8. Assessment	**Yes**	Multiple types of formative and summative assessments are embedded into the content materials and assess the learning targets. 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, observable, and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

DEPARTMENT of EDUCATION
Louisiana Believes

Instructional Materials Evaluation Tool for Alignment in Science Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

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: **PhD Science** Grade/Course: **2**

Publisher: **Great Minds PBC** Copyright: **2021**

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

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
3. Alignment & 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 yellow. 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 teach the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) in an integrated manner 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 materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. In Module 1: Matter, Lesson 10, students work in groups to build a structure using a set of plastic building blocks (SEP, Developing and Using Models). Then, they take this structure apart and use the same blocks to build a different structure (DCI, LE.PS1A.b; CCC, Energy and Matter). Students observe and discuss the differences (SEP, Analyzing and Interpreting Data) between the original structure and the new structure they built using the same blocks, building their understanding of the idea that objects can be built up from a small set of pieces (DCI, LE.PS1A.b). In Lessons 12-13, students apply their knowledge of matter and its properties to analyze the materials in a honey bee nest by making observations about these materials (SEP, Constructing Explanations and Designing Solutions), describing the properties of the materials

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			in honey bee nests, and classifying these materials (DCI, LE.PS1A.c; CCC, Patterns). In Module 2: Earth's Changes, Lesson 8, students investigate ways in which water can change the shape of land (DCI, LE.ESS2A.a) through generating observations and collecting data using a stream table (SEP, Planning and Carrying Out Investigations). Students use models to investigate how rain and rivers interact with land, then record the changes in the land they observe after adding water (CCC, Stability and Change). In Module 3: Plants, Lesson 21, students observe the properties of huckleberries and burs (CCC, Structure and Function). Students use their observations as evidence to support a claim (SEP, Engaging in Argument from Evidence) about the relationship between the properties of burs and the way cocklebur plant seeds travel (DCI, LE.LS2A.b). After learning about seed travel in Lesson 23, students apply their understanding of seed travel within a different context by using models (SEP, Developing and Using Models) to describe the ways in which animals can move seeds to new places (DCI, LE.LS2A.b) in the Sonoran Desert. Students compare the ways animals move and conclude that properties of a plant's seed coverings (CCC, Structure and Function) often determine how its seeds travel. In Module 4: Biomes, Lessons 17-19, students participate in a Science Challenge to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			measure and describe the biodiversity of their schoolyard. Students begin by making initial observations of the plants and animals in the schoolyard, then plan their investigation (SEP, Planning and carrying out investigations). During the investigation, students work in groups to identify and count the number of different plants and animals in three parts of the schoolyard (DCI, LE.LS4D.a). Students then create graphs (SEP, Using Mathematics and Computational Thinking) to compare the amounts (CCC, Scale, Proportion, and Quantity) of different plants and animals within each category.
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 a majority of the time. The materials begin with an anchor phenomenon to spark student interest for each module, and students engage with investigative phenomena throughout sets of lessons within modules to support sensemaking of the anchor phenomenon. The investigative phenomena (Concept Focus Questions) for each module provides opportunities for students to generate questions and define solutions to problems as they work individually and in groups to explore the anchor phenomenon in depth. In Module 2: Earth's Changes, students explore and build understanding to answer "How can the island of Surtsey change shape over

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			time?" Students build knowledge of phenomenon through two module concepts: The Composition and Shape of Land (How can we describe land?) and The Changing Shape of Land and Timescales of Changes to Land (How can land change?). Throughout the module, students revisit the anchor phenomenon and refine a model of the formation and transformation of Surtsey. For example, in Lessons 5 and 6, students connect land components to land shape as they observe and describe landforms found in national parks and protected lands. Students then examine maps to discover that land areas can vary in shape and that many of the same landforms are found in different places on Earth. In Lesson 6, students return to the phenomenon question, "How can we describe the shape of land?" Students respond to the question by summarizing and recording new concepts on sentence strips, then add these strips to the anchor chart. In Module 3: Plants, students listen to a reading from *Volcano: The Eruption and Healing of Mount St. Helens,* by Patricia Lauber, and observe before and after photographs that reveal the eruption's effects. Students use their knowledge of what plants need to survive and grow to develop initial models and ask questions that will drive the learning in the module, focusing on the anchor phenomenon: "How did local plants recover after the eruption of Mount St.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Helens?" Student questions listed on the Driving Question Board set the stage for students to ask additional questions and drive learning for the three module concepts: Plant Growth (Do different amounts of natural resources recover after the eruption of Mount St. Helens?), Pollination (How can pollination involve animals?), and Seed Travel (How can seeds travel to new plants?). For example, in Lessons 3-6, students explore why some plants recovered quicker than others after the eruption, leading to a module-long plant investigation in which students collect data on plant growth in various conditions. In Lessons 8-13, students explore the important role of pollination in plant reproduction, and, in Lessons 14-18, students learn that ash from the eruption harmed many pollinators around Mount St. Helens. Continuously revising the anchor model and Driving Question Board throughout the module, students expand their understanding of how seeds travel (Lessons 21-22) and analyze data from the plant growth investigation (Lessons 25-26). In Module 4: Biomes, students observe photographs of Mount Everest and a nearby location, noting different environments on Mount Everest and in the surrounding area. Students also study images to observe and describe the changes in the environment from Kathmandu to the summit of Mount Everest and develop an anchor model that

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			illustrates the changes in the environment as elevation varies in the Mount Everest region. This anchor phenomenon, along with student-generated questions, helps to introduce students to the module's phenomenon, "Why do so many kinds of plants and animals live below Mount Everest but so few live on it?" Students begin to develop a class anchor model as they learn about the three module concepts: Environments (How can we describe an environment?), Biomes (How do biomes compare with one another?), and Biodiversity (How does biodiversity compare between environments?). As students engage with text, data, media, and hands-on investigations throughout the module, they begin to establish an enduring understanding that Earth's land and water environments support many different species. Throughout the module, students regularly revisit the class anchor model and Driving Question Board to incorporate newly gained knowledge and explain why different kinds of plants and animals live in different environments.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **3. ALIGNMENT & ACCURACY:** Materials adequately address the [Louisiana Student Standards for Science]().	**Required** **3a)** The majority of the Louisiana Student Standards for Science are incorporated, to the full **depth of the standards**.	**Yes**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards. For example, in Module 1, Lessons 24-28, students focus on answering the Concept 3 Focus Question, "Why is understanding the properties of matter useful?" Students draw on their knowledge of bird and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			honey bee nests as they use the engineering design process to design and build a shelter that provides protection from rain (SEP, Constructing Explanations and Designing Solutions). In Lesson 24, students revisit The Crayon Man: The True Story of the Invention of Crayola Crayons (Biebow and Salerno, 2019) to find examples of the engineering design process in action. In Lesson 25, they analyze the properties of various materials to determine which are most suited to building their shelter (DCI, LE.PS1A.a). Throughout the remainder of the Engineering Challenge, students apply their understanding that the materials that make up a structure (DCI, LE.PS1A.b) and the structure's shape and stability relate to its function (CCC, Structure and Function) as they design, create, test, improve, and share their solutions. The integration of the three dimensions provides the opportunity for students to gain a deep understanding of LSSS 2-PS1-2. LSSS 2-ESS2-1 is fully addressed in Module 2, Lessons 10-12. In Lesson 10, students plan an investigation to gather evidence about the interactions of wind and land. Students compare a current photograph and a historical photograph of the Great Sphinx of Giza and read World Traveler: The Sphinx by Catherine Schmidt and Molly O'Halloran (2018) to generate ideas about the wind's role in burying the Sphinx in sand. In Lesson 11, students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			observe wind and land interactions to describe how wind can change the shape of land (DCI, LE.ESS2A.a). Students use wind models to investigate (SEP, Planning and Carrying Out Investigations) the ways in which wind (DCI, LE.ESS2A.a) picks up and moves land materials and causes land to change shape (CCC, Cause and Effect). Students use evidence from their wind model observations (SEP, Constructing Explanations and Designing Solutions) to generate an argument to support the claim that wind can change land (CCC, Stability and Change). They also develop a possible explanation for how the Great Sphinx of Giza was buried in sand (SEP, Constructing Explanations and Designing Solutions). Lastly, in Lesson 12, students compare solutions to problems caused by wind changing the shape of land (DCI, LE.ETS1C.a). Students identify problems caused by wind changing the land and compare the solutions people have designed to address these problems. LSS 2-LS2-2 is fully addressed in Module 3: Plants, Lesson 9, as students investigate the ways animals pollinate plants. In Lesson 9, students use a chenille stem and flower to model (SEP, Developing and Using Models) the ways that an animal and a plant can interact to determine that animals can pick up pollen when they visit flowers for nectar (DCI, LE.LS2A.b). Students also use a magnifier to describe the different shapes of pollen grains and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to connect the grains' various shapes with the ways pollen could stick to animals during pollination (CCC, Structure and Function).
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	All reviewed 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.
	3c) 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 grade or grade-band. Instructional materials consistently appear focused on Grade 2 standards and within the K-2 grade-band.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **4. DISCIPLINARY LITERACY:** Materials have students engage with authentic sources and incorporate speaking, reading, and writing to develop scientific literacy. ☒ Yes ☐ No	**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 increase in higher grade levels and courses.	**N/A**	Not applicable to this grade level.
	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. The modules provide regular opportunities for students to ask, organize and refine questions using the Driving Question Board. Materials promote speaking about scientific ideas through discussion strategies, such as Socratic Seminars. Student Science Logbooks

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			provide students with a place to record observations and communicate scientific thinking supported by evidence. In Module 1: Matter, students use observations, both first-hand and through photographs and videos, to develop a class model and generate questions for the Driving Question Board which explain matter and its interactions. In Lessons 4-6, students investigate ways to describe and classify matter. In Lesson 4, students participate in a hands-on investigation by examining multiple samples and recording observations about the properties of the samples in their Science Logbooks. Students then participate in a class discussion to share their observations and add new descriptive words to the class properties list. In Lesson 5, students investigate ways to classify materials and objects based on their properties and are introduced to the terms liquid and solid. In Lesson 6, students revisit a video of a hummingbird adding cotton to its nest and participate in a class discussion, using properties of cotton to justify their classification of cotton as a solid or liquid. Students then conduct further hands-on investigations to record observations in their Science Logbooks about the properties of solids and liquids. In Lesson 7, students apply their knowledge and gather evidence to classify sand as a solid or liquid. In Module 2: Earth's Changes, Lessons 10-12 focus on students building

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			on their understanding of the changing shape of land. Students compare a current photograph and a historical photograph of the Great Sphinx of Giza to generate ideas about the wind's role in burying the Sphinx in sand. Then, they use wind models to investigate the ways in which wind picks up and moves land materials and causes land to change shape. Next, using evidence from their wind model observations, students generate an argument to support the claim that wind can change land. They also develop a possible explanation for how the Great Sphinx of Giza was buried in sand. In Module 4: Biomes, Lessons 14-15, students compare Earth's major biomes. Students learn about the mountain viscacha, an animal native to the Andes Mountains in South America. After obtaining information about the habitat and needs of the mountain viscacha, students develop a model of the mountain viscacha's interactions with its habitat by adding components and labels to the illustrations in their Science Logbooks. Students discuss which biomes a mountain viscacha would pass through to reach a similar environment on another continent by using maps of Earth's biomes. Next, students obtain information to make posters that summarize temperature and precipitation patterns for four new biomes and describe the plants and animals that live in each biome.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	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**	There is variability in the tasks that students are required to execute. Throughout the materials, students are regularly engaged in a variety of tasks such as modeling phenomena, conducting investigations to explain phenomena, and designing solutions to problems. In Module 1: Matter, Lessons 4-7, students observe a variety of solid and liquid samples to explore how matter can be classified by its properties. They use their senses to make observations, build a list of properties, and use these properties to sort objects and materials. Students investigate the movement of solids and liquids in containers of different sizes and shapes as they continue to refine their descriptions. Students then look and listen for examples of solids and liquids and add their new knowledge to the anchor chart. In Module 2: Earth's Changes, Lesson 8, students first examine a photograph and video of a shoreline in Olympic National Park to generate observations of the ways water affects land. Next, students participate in a hands-on investigation using stream tables to model and record observations and measurements of how rain and land interact and how a river and land interact. Students record observations and measurements in their Science Logbooks and draw models of the changes to land. Students then participate in a class discussion using an Inside-Outside routine to analyze their data and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			summarize the ways that water can change the shape of land. At the end of the lesson, students use the Act It Out routine to reinforce the idea that water can move and change the shape of land. Students imagine that they are pieces of sand, soil, and gravel in a river model before water is added. Students then move in a way that shows how water affects land and discuss how water moves smaller pieces of land to other locations. In Module 3: Plants, Lessons 3-6, students plan and conduct an investigation to explore whether varying amounts of water and light change the growth of different kinds of plants. In Lesson 3, students participate in an Act It Out routine in which they act as trees from the forests near Mount St. Helens. Students then discuss which of their body parts represent the different parts of the tree. Students observe similarities and differences between two photographs showing before Mount St. Helens' eruption and nine years after the eruption. In Lessons 4-5, students develop investigation questions to determine how different amounts of water or light affect plant growth, then carry out the investigation. In Lesson 6, students collect data in their Science Logbooks and apply their findings from the investigation to answer questions about the plant growth around Mount St. Helens.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	4d) 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 in the materials, but not taught in isolation of deeper scientific learning.	**Yes**	The 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 terms. Each module includes key terms that students learn through investigations, explanations, models and class discussions. Throughout Module 1: Matter, Concepts 1-2, students generate words related to classifying and describing matter. The teacher records the student-generated terms and questions on a chart so that in Concept 3 they can fully discuss these topics in an instructional routine (Link-Up) and identify relationships or connections between the key terms identified in the module. In Lesson 4, students observe six samples and record descriptions of how each sample looks, sounds, and moves in their science logbooks. In Lesson 5, students first examine an image of multiple shapes in varying sizes and colors. Students then consider how to utilize the class list of properties generated from previous lessons to group the shapes. After discussing the different ways students can group the shapes using various properties, the teacher introduces the term classify to students. Students participate in a hands-on investigation in which they apply their knowledge to classify samples by various

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			properties. In Module 4: Biomes, Lesson 13, students begin the lesson by examining savanna and alpine tundra overlay maps and describing the environment in the shaded areas related to weather, animals, and plants. Students then apply prior knowledge of savanna and alpine tundra environments to generate facts about each environment and share their answers using sticky notes in the classroom. Students revisit previously recorded information about savanna and alpine tundra environments in their Science Logbooks to write a description of savanna and alpine tundra environments that includes information about the weather patterns, plant life, and animal life. After reviewing student responses, the teacher introduces the term biome to students. Students then analyze a biome overlay map and images from previous lessons to develop a claim about the weather, plants, and animals in an unknown location.
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	**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 lessons within and across each unit 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 to support student

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
content complements the the Louisiana Student Standards for Math. ☒ Yes ☐ No			mastery of the Performance Expectations and prevent misunderstanding. The module lessons are organized so that Disciplinary Core Ideas, Science and Engineering Practices and Crosscutting Concepts build upon each other throughout the course of study. Each module includes a Module Map and a Building Knowledge and Skills Across Levels section that provide guidance as students incrementally build knowledge and skills associated with the SEPs, DCIs, and CCC. Throughout each module, the class creates a Driving Question Board to relate concept questions and guide upcoming lessons. The Driving Question Board helps to focus the progression of learning for the anchor phenomenon. The SEPs, DCIs, and CCC are coherently sequenced across all of the lessons and continuously reinforced throughout the modules. Lessons are organized around a storyline, such as the birds building nests featured in Module 1: Matter. Throughout this module, students engage in activities that incorporate the three dimensions of the standards at increasing levels of complexity and sophistication. In Lessons 1-3, students explore the different materials birds use to build nests (DCI, LE.PS1A.a). In Lesson 1, students examine materials birds might use for nest building and draw an initial model of a bird nest (SEP, Developing and Using Models). In Lesson 2, students observe photographs of

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			different kinds of bird nests and listen to readings about the wide variety of materials birds use for nest building (SEP, Analyzing and Interpreting Data). Students then develop an initial anchor model by describing different bird nests and the materials birds use to construct them (CCC, Systems and System Models). In Lesson 3, students begin to explore the properties of materials by comparing metal and plastic spoons and forks. Next, they apply their understanding of materials and objects to create an anchor chart and update their anchor model with an explanation of how materials and objects relate to bird nests. Lastly, students generate questions (SEP, Asking Questions and Defining Problems) about bird nests and the materials birds use to build them to develop a Driving Question Board that will guide student exploration throughout the module. These three lessons lay the foundation for the module so that the students can gain understanding as they move through each subsequent lesson. When students get to Lessons 10-11, they build different structures by using the same set of smaller pieces (CCC, Energy and Matter) and by observing parts of an orange to identify different properties (DCI, LE.PS1A.a). This prepares students for Lessons 12-13, in which they practice observing (SEP, Analyzing and Interpreting Data) and classifying materials in honey bee nests to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			determine whether the materials are solids or liquids (DCI, LE.PS1A.c). These lessons prepare students for Lessons 20-28, in which they develop the understanding that objects and materials have properties that make them suited to different purposes. Lessons 20-24 focus on students utilizing different writing tools on various surfaces and analyzing the data they collect (SEP, Analyzing and Interpreting Data) to determine how well each writing tool is suited to writing on different surfaces. They observe bird nests and update the anchor model to describe how different nest materials (CCC, System and Systems Models) have properties that make them suited to building bird nests (DCI, LE.PS1Aa). In Lessons 24-28, students draw on their knowledge of bird and honey bee nests as they use the engineering design process to design and build a shelter that provides protection from rain (SEP, Constructing Explanations and Designing Solutions). Students analyze the properties of various materials to determine which are most suited to building their shelter. Throughout the remainder of the Engineering Challenge, students apply their understanding that the materials that make up a structure (DCI, LE.PS1Aa) and the structure's shape and stability relate to its function (CCC, Structure and Function) as they imagine, create, test, improve, and share their solutions. At the end of the unit, students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			synthesize their learning from throughout the module and express their understanding of properties of matter.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's 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 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 Grade 2. Students are regularly called to apply mathematics skills and understanding appropriately in the context of their learning. In Module 2, Lesson 8, teachers use one inch cubes to measure the lengths of sand and soil distribution in wave, rain, and river models. In doing so, students develop the understanding that differences in length can be expressed in standard units as they investigate how water and land interact and how water can change the shape of the land. This supports LSSM 2.MD.A.4, as students measure to determine how much longer one object is than another, expressing the length difference in terms of a standard-length unit. In Module 3: Plants, Lesson 6, students discuss how different amounts of water or light affect plant growth. As students answer questions about using different measurements to compare the lengths of String A and String B, they build an understanding that two different standard units on a measuring tool can express the same length. This supports

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			LSSM.2.MD.A.2, as students measure the length of an object twice, using different units for the two measurements, and describe how the two measurements relate to the size of the unit chosen. This activity allows students to build on their previous experiences working with data. In Module 4: Biomes, Lesson 19, students analyze data gathered from observations around the school about plants and animals to generate bar graphs to determine an answer to the investigation question, "How many different types of plants and animals live in our schoolyard?" Students practice representing and interpreting data as they use the information on the class data charts to draw one plant bar graph and one animal bar graph, each with a single-unit scale and four categories. This connects to LSSM 2.MD.D.10, in which students draw a bar graph to represent a data set with up to four categories and use this data to make comparisons as they discuss the different kinds of plants and animals in the schoolyard.
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.	**Required** **6a)** There are separate **teacher support** materials including: scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials including scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them. Within each Module Overview and Concept, support materials include: a Teacher Background section that includes scientific background about

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			the Disciplinary Core Ideas of the unit, a 3-D Strategies section that detail explicit techniques for highlighting SEPs, DCIs, and CCCs, and sample prompts and conversation guides that elicit class discussions. Each Module includes a Teacher Edition that provides detailed information, such as a Module Overview, detailed lessons, Appendices for Module Resources, Module Storyline, Module Glossary, Domain-Specific Words, General Academic Words, and Spanish Cognates. The Teacher Note sections offer guidance to teachers in the form of implementation strategies to engage student thinking, as well as models explaining how students should respond to certain questions or activities in lessons. The Introduction provides the Essential Question of the module along with an overview of the Concept Focus Questions and lessons that guide student learning. Additionally, each Module Overview provides a detailed summary of how the instructional materials flow between Concepts and Lessons and how materials are organized to ensure students master the connected Performance Expectations based on the standards addressed in the Module. The Module Map highlights the Focus Question for each Concept, the Science Topic and Phenomenon Question Addressed, the Student Learning Objective for each lesson within each Concept, and the Performance Expectation addressed.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			The Teacher Edition also provides an overview of how the three dimensions are addressed within the Module and in-depth explanations of how the materials build knowledge and skills across levels. The Module also provides teachers with additional sources for reading and building deeper background knowledge of the anchor phenomenon. Each lesson provides conversation guides, sample scripts, student look-fors, rubrics, and exemplar student responses. At the end of each module's Teacher Edition, appendices provide teachers with support before and during instruction. Appendix A, Module Resources, includes a set of lesson-specific resources to aid instruction, such as full-size photographs, informational texts, investigation procedure sheets, materials preparation, and supplemental information. Appendix B, Module Storyline, includes a more detailed version of the Module Map in the Module Overview that summarizes the progression of concepts in the module. Appendix C, Module Glossary, includes grade-level appropriate definitions for new terms in the module and the lesson in which the definition appears. Appendix D, Domain-Specific Words, General Academic Words, and Spanish Cognates, includes a list of key terms in the module and their Spanish cognates to support English language development.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. The Module Overviews include a pacing guide with alternative suggestions for differentiation and diverse learner supports promoting equitable participation. The call out boxes in lessons of all modules contain notes on differentiation strategies the teacher can incorporate to support learners who may need additional support or who need more of a challenge. The guidance assists teachers in deepening their knowledge of science content, pedagogy, and the progression of student learning. Each unit provides a Module Glossary with grade-level appropriate descriptions of the module terminology. The glossary is differentiated by student tiers and contains Domain-Specific Words, General Academic Words, and Spanish Cognates to support English Language Learners. For example, in Module 2: Earth's Changes, Lesson 1, students pass an inflatable globe around the classroom by gently tossing it to one another and are instructed to catch the globe and identify an area they think shows land. A differentiation note suggests that teachers provide the Spanish cognate to assist with English language development, since students will encounter the term globe throughout the module. It also suggests that if students are limited in their abilities to toss or catch

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			the inflatable globe, teachers should consider having them pass the globe by rolling it or handing it to one another. In Module 3: Plants, Lesson 5, a differentiation note suggests that teachers "assist students with gross motor difficulties who may struggle to pour or manipulate some materials. Consider assigning these students the role of materials manager so they may read aloud the procedure or monitor for safety during setup." In Module 4: Biomes, Lesson 3, students develop initial models of what they have learned about the environments surrounding Mount Everest in their Science Logbooks. A differentiation note suggests that the teacher encourages students working above grade level to draw additional plants and animals, label additional features (e.g., summit, base, mountain range), show the change in temperature with elevation, and provide as many details and explanations as possible on their models.
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.	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The online teacher's manual 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. The Implementation Guide states that Materials Kits can be purchased directly from the vendor and contain all necessary supplies. The Kits are

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			organized by Module, and Refill Kits can be purchased for consumable items. The Teacher's Edition contains a copy of all resources organized by lesson. The Knowledge Deck and Posters are available for purchase through the Vendor's website, as well.
	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**	The 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 safety contract and quiz are included in Appendix A of Module 1. General safety guidelines are provided at the start of each module and include safety measures, such as students wearing safety goggles during investigations involving equipment, and students never placing investigative materials in their mouths. Throughout the modules, students participate in several hands-on investigations that require teachers to review safety guidelines prior to the start of the lessons. In Module 1: Matter, Lesson 6, students investigate the shapes of solids and liquids by visiting different stations, including pouring stations. A safety note at the beginning of the activity provides reminders for the teacher to share with students: "Wear safety goggles at all times, avoid putting any samples near eyes, noses, and mouths, inform an adult about any spills

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and avoid touching any liquids." In Module 3: Plants, Lesson 11, students examine blueberries. A safety note at the beginning of the activity suggests that teachers beware of food allergies prior to distributing blueberry halves to students, have students wear gloves and goggles, remind students to keep blueberries away from their mouths, and instruct students to wash their hands with soap and water once the activity is complete.
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. There are four modules within the grade level. Each module includes between 24 and 31 lessons which are approximately thirty-five minutes in length but may extend past one class period of science. Additionally, extension activities are provided within units to deepen understanding, as time permits. Module 1 contains 31 lessons, Module 2 includes 24 lessons, Module 3 includes 29 lessons, and Module 4 contains 25 lessons. There are 109 lessons in total which allows teachers flexibility with time and accounts for interrupted days that may occur during the school year.
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.	**Required** **8a) Multiple types** of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Multiple types of formative and summative assessments are embedded into the materials and assess the learning targets. The modules contain a variety of performance-based tasks, investigations, and projects in which students design solutions to real-world problems. Formative assessment questions are

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			embedded in lessons and include nonverbal signaling, teacher observation, and Conceptual Checkpoints. Conceptual Checkpoints assess student proficiency of the standards identified in each Concept. There is one checkpoint per concept and evaluation guidance is included. Summative assessments include performance tasks and End-of-Module Assessments. For example, each module concludes with either an Engineering Challenge or a Science Challenge to assess student ability to apply conceptual knowledge to solve a real-world problem. Each module provides an End-of-Module Assessment that provides students the opportunity to demonstrate the knowledge and skills they have acquired throughout the module in the context of one or more phenomena. There is one assessment per module, and rubrics are provided. For example, in Module 2: Earth's Changes, Lesson 7, students complete a Conceptual Checkpoint in which they use what they learned in Concept 1 as they examine and use evidence from observations of landforms to describe Surtsey's land. Students make observations about land for three locations in Surtsey, identify the components that make up the land, and describe the land's shape. The Conceptual Checkpoint is used to assess student understanding of the Focus Question of Concept 1, "How can we describe land?"

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			The teacher assesses the students' ability to make observations while constructing a claim, as well as their understanding that wind and water can change the shape of the land and that objects and organisms can be described in terms of their parts. The materials provide the next steps if students need support to make observations of Surtsey's land or do not describe both the composition and shape of the land. In Module 4: Biomes, Lessons 17-19, students complete a Science Challenge to determine the number of different kinds of living things in their schoolyard. During the challenge, students plan and conduct an investigation to measure the biodiversity of their schoolyard and then analyze and interpret the data to describe this biodiversity. Teachers use guidance from the materials to check for student understanding throughout the challenge. For example, as students plan their steps of their investigation, the teacher is guided to "listen for discussions about how students will make their observations and count the number of kinds of plants and animals in the schoolyard." The materials also provide additional support for students, including questions such as, "How will you find out how many kinds of animals live in the schoolyard?" and "How will you keep track of the number of different kinds of plants and animals you observe?" In Module 3: Plants, students participate in a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Debrief End-of-Module Assessment, a summative assessment of student knowledge regarding the connections between the DCIs and CCCs of the unit. The materials provide suggestions for teachers to facilitate this discussion with the students.
	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. End-of-Module Assessments give students opportunities to demonstrate new knowledge and skills acquired throughout the Module in the context of one or more new phenomena to deepen understanding while using the Science and Engineering Practices (SEP) to fully integrate their understanding of the Disciplinary Core Ideas (DCI) and the Crosscutting Concepts (CCC). Teachers are provided with Sample Student Responses and Rubrics to assess student learning. For example, in Module 1: Matter, Lessons 29-31, students complete the End-of-Module Assessment in which they engage in Developing and Using Models (SEP) while applying knowledge of Energy and Matter (CCC) and Structure and Properties of Matter (DCI) to explain why a sculpture was remade in bronze. Students select their answers, and the teacher uses the End-of-Module Assessment Rubric to assess student mastery of the performance standards and three-

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			dimensional learning. In Module 4: Biomes, the End-of-Module Assessment, students synthesize their knowledge of the reasons different kinds of plants and animals live in different environments within a new phenomenon by explaining how the environments of Yellowstone National Park compare with one another. In Question 1a, students identify and compare the features of two maps (SEP, Developing and Using Models) to determine what information each map shows (DCI, LE.ESS2B.a). In Question 1b, students identify patterns (CCC) in the features of the two maps (SEP, Analyzing and Interpreting Data) to determine that both maps are necessary for locating a trail that leads to Heart Lake (DCI, LE.ESS2B.a). In Module 3: Plants, Lessons 14-18, students participate in an Engineering Challenge and apply the engineering design process to develop pollination tools that can help humans pollinate plants in the absence of natural pollinators. This challenge incorporates the three dimensions of science, as students apply their knowledge of the ways in which pollinators transfer pollen from one plant to another to test and collect data with pollen-collecting materials for use in their designs (DCI, LE.LS2A.b). First, students draw and label plans (SEP, Developing and Using Models) that show which materials they will use and how they will combine the materials

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to make their pollination tools. Then, students test their tools and make claims (SEP, Engaging in Argument from Evidence) about how well their tools function (CCC, Structure and Function). The materials provide a rubric for teachers to use as they assess student performance of the standards addressed in the Engineering Challenge.
	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, observable, and measurable. Each module contains a Science or Engineering Challenge and an End-of-Unit Assessment to assess student knowledge. Both items include rubrics with specific, observable, and measurable criteria for teachers to assess student performance expectations for the specified standards addressed. The rubric lists each standard, DCI, SEP, and CCC associated with each assessment item along with an example of a "correct or reasonable response with sufficient detail or evidence." For example, in Module 1: Matter, End-of-Module Assessment, Question 3, students observe a picture of a thermometer and beeswax and use it as evidence (SEP, Constructing Explanations and Designing Solutions) to justify the claim that beeswax must be heated to very hot temperatures to become a liquid (CCC, Cause and Effect; DCI, PS1B.a). In Module 2: Earth's Changes, End-of-Module Assessment, Question 1a,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			students observe information about sea stack formation (SEP, Constructing Explanations and Designing Solutions) and select the claim that describes water slowly breaking off pieces of a headland (CCC, Energy and Matter) until sea stack remains (DCI, ESS2A.a). On Question 1b on the Module 4: Biomes, End of Module Assessment, students identify patterns (CCC) in the features of Maps A and B to determine that both maps are necessary for locating a trail that leads to Heart Lake (DCI, ESS2B.a; SEP, Obtaining, Evaluating and Communicating Information). An answer key and a scaled rubric are provided for teachers to record and assess student responses. Question 3b includes an example for a "correct or reasonable response with sufficient detail or evidence provided" which states, "The student uses headings and icons on a chart and the environment cards to obtain information about animal needs and trail environments (SEP). The student uses this information to determine the environment in which each animal species lives (LS4.D)."

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 materials integrate 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. Phenomena in the form of common experiences at the beginning of each unit spark students to generate questions and define problems to motivate learning about the core ideas of the unit, and this provides purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon.
	3. Alignment & Accuracy	**Yes**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards. Instructional materials spend minimal time on content outside of the 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

[2] Must score a "Yes" for all Non-negotiable Criteria to receive a Tier I or Tier II rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			using scientific evidence to support ideas. There is variability in the tasks that students are required to execute. Throughout the materials, students are regularly engaged in a variety of tasks such as modeling phenomena, conducting investigations to explain phenomena, and designing solutions to problems. The 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 the students have first had the opportunity to build conceptual understanding of the terms.
II: Additional Criteria of Superior Quality[3]	5. Learning Progressions	**Yes**	The lessons within and across each unit 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 to support student mastery of the Performance Expectations and prevent misunderstanding. Students apply 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 Grade 2. Students regularly are called

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to apply mathematics skills and understanding appropriately in the context of their learning.
	6. Scaffolding and Support	**Yes**	There are separate teacher support materials including scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them. Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment. The total amount of content is viable for a school year.
	8. Assessment	**Yes**	Multiple types of formative and summative assessments are embedded into the content materials and assess the learning targets. 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, observable, and measurable.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

DEPARTMENT of EDUCATION
Louisiana Believes

Instructional Materials Evaluation Tool for Alignment in Science Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

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: **PhD Science** Grade/Course: **3**

Publisher: **Great Minds, LLC** Copyright: **2019**

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

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
3. Alignment & 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 yellow. 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 teach the science and engineering practices (SEP), crosscutting concepts (CCC) and disciplinary core ideas (DCI) separately when necessary but they are most often integrated 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 materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. In Module 1, Lessons 16, students identify weather hazards and examine their potential effects. Students first discuss weather related phenomena. Then, from observing and analyzing photographs of varying severe weather conditions (SEP, Obtaining, Evaluating, and Communicating Information), students create a class severe weather chart describing severe weather hazards (DCI, UE.ESS2B.a) and their effects (CCC, Cause and Effect). In groups, students analyze the class Severe Weather Chart and identify similarities and differences (CCC, Patterns). In Lesson 17, they investigate scales designed to rate severe weather systems. Students use what they learned about hurricane scales to determine the possible effects (CCC, Cause and Effect) of Hurricane Katrina with a scale of Category 5. In Lesson 18, students investigate how people protect themselves from weather hazards by observing several photographs of solutions for each type of severe weather (SEP, Obtaining, Evaluating, and Communicating Information). Students update the severe weather chart from Lesson 16, identifying and creating solutions to help reduce the impact of severe weather hazards, including a blizzard, hurricane, drought, severe thunderstorm and tornado. (DCI UE.ESS3B.a).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Module 2, Lesson 15, students Use a Model (SEP) of a meerkat system to construct and support an argument (SEP, Engaging in Argument from Evidence) that some animals form groups that help members survive (DCI, PE 3-LS2-1). In this lesson, students participate in a modeling activity of a meerkat system including: meerkats, their burrows, their food, and the area near their burrows where they look for food. One student portrays a predator entering the meerkat system. Other students model the behaviors of the meerkats as they respond to a change in the system (CCC, System and System Models). This activity demonstrates how meerkats use the advantage of their group to cope with the change of the addition of a predator to their system (DCI, UE.LS2D.a). In Module 3, Lesson 9, students engage in several investigations (SEP, Planning and Carrying Out Investigations) while rotating through Trait Influence Stations. Throughout the stations, students read and analyze text, observe photographs, and use hands-on models to identify variations in traits of organisms of the same species (CCC, Patterns). Students record variations and their causes (CCC, Cause and Effect) in their Science Logbooks (DCI, UE.LS3A.a). In Lesson 10, students share Science Logbook responses to create a class cause/effect chart by identifying the organism, its change in trait, and the cause of the change (CCC, Cause and Effect). For example, the variation in color of the American flamingos' feathers is caused by eating different types and amounts of food. In a class discussion, students use the chart to provide evidence to support the explanation (SEP, Constructing Explanations) that changes in traits can be caused by environmental influences (DCI, UE.LS3A.b). In Lesson 11, students construct a written explanation (SEP, Constructing Explanations) in their Science Logbooks, determining if the traits of two puppies that changed overtime were influenced by their growth or by the environment (CCC, Cause and Effect; DCI, UE.LS2A.b) .

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
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 learning a majority of the time.	**Yes**	Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time. The materials have an anchor phenomenon for each module and students engage in investigations and activities that lead to generating questions and defining solutions to problems as they work individually and in groups to explore the anchor phenomenon in depth. Each module is then broken into sections called "Concepts," which use smaller phenomenon-based questions to continue to provide the purpose for students to engage in the investigations and lessons that follow as they grapple with both the smaller concepts and the larger anchoring phenomenon. For example, in Module 1, students are introduced to the phenomenon of the 1900 Galveston Hurricane by observing photographs depicting the destruction of structures it caused. This Anchoring Phenomenon helps to introduce students to the module's essential question, "How can we prevent a storm from becoming a disaster?" This sets the stage for students to use additional phenomenon questions to learn the 3 Module Concepts: Weather Conditions, Climate, and Weather Hazards. As students engage with text, data, media, and hands-on investigations throughout the module, they develop the knowledge needed to design a solution to help prevent a disaster caused by weather hazards such as hurricanes. In Module 3, the variation in humpback whales is the anchor phenomenon. Students build knowledge to answer the essential question, "What makes an individual humpback whale unique?" In Lessons 1 and 2, students build a foundation for understanding individual variation by describing patterns in the characteristics that humpback whales have in common. After establishing these commonalities, students begin to ask questions about the differences between individuals. This builds upon the Phenomenon Question: How do we

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			know if an organism is a humpback whale? Students look at photographs to identify humpback whales by distinguishing their unique characteristics. In Lesson 3, students develop an anchor evidence organizer to begin describing what makes an individual humpback whale unique. They also build a driving question board that guides their learning throughout the rest of the module as they investigate four concept sequences: Describing Organisms, Growth, Development; Environmental Influences; Inherited Traits; and Advantages of Traits. At the end of the module, students participate in a Socratic Seminar in which they apply their understanding to describe factors that influence traits and explain how traits affect an individual's life. Finally, students revisit the anchor phenomenon by constructing a written response to the essential question for the unit. In Module 4, students study and observe motion in space in comparison to motion on Earth, which serves as the anchor phenomenon for the unit. The anchor is supported by the essential question, "Why do objects move differently in space than they do on Earth?" The unit is broken down into three concept sequences: Motion; Forces; and Magnetic and Electric Forces. In Concept 1, Motion, the sequence in Lessons 1-9 is driven by the focus question, "How can an object's motion be described and predicted?" Student activities and investigations such as, developing a model comparing the motion of a soccer ball on Earth to that of a soccer ball in the Space Station, observing and measuring the motion of different objects, and investigating how increasing a pendulum's release distance affects the motion of a toy car, provide the purpose and opportunity for learning. In Concept 2, Forces, the sequence in Lessons 10-18 is driven by the focus question, "What can cause the motion of an object to change?" In this sequence, students use Atwood Machines to model both the effects of changing forces and the effects of multiple forces on the motion of a block. These investigations provide the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			purpose and opportunity for learning. In Concept 3, Magnetic and Electric Forces, the sequence in Lessons 19-22 is driven by the focus question, "How can an object move without being touched?" Student activities provide opportunities for students to explore the effects that a magnet's strength, orientation, and distance have on other magnets or objects, as well as the effects that statically charged objects have on other objects. In Lessons 23-26, students apply what they have learned about forces to design a device to prevent a toolbox from floating away from astronauts in space, connecting back to the anchor phenomenon.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **3. ALIGNMENT & 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**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards (i.e., 15 out of 15). In Module 1, Lessons 21 - 25, students engage in an engineering challenge in order to answer the phenomenon question, "How can people design better solutions to reduce the impact of weather hazards?" In Lessons 21 - 25, students apply the engineering design process to design a structure (SEP, Designing Solutions) that reduces the impact of flooding caused by storm surge (CCC, Cause and Effect). In Lesson 26, students explore modern solutions that reduce the impact of weather hazards related to hurricanes (UE.ESS3B.a). The integration of the three dimensions, provides the opportunity for students to gain a deep understanding of LSSS 3-ESS3-1. LSSS 3-LS4-2 is fully covered in Module 3, beginning with Lesson 21, in which students begin to develop an understanding of how traits can help a species survive in exploratory statins where students act like Brown Pelicans, Ruby-Throated Hummingbirds, and Prickly Pear Cacti to see how traits help the organisms survive. These stations help students prepare for the learning in Lesson 22 in which students model a predator-prey relationship of how

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			an owl hunts for pocket mice. Through a model of this relationship, students are able to use evidence to Construct Explanations (SEP) as to why the difference in fur color between pocket mice helps the mouse in surviving (DCI, UE.LS4B.a). In a discussion, students explain how the color of the fur had a direct effect (CCC, Cause and Effect) on the survival of the mouse. In Module 4, Lesson 4, students participate in Planning and Carrying Out an Investigation (SEP) as they suggest procedures to follow and measurements to take to investigate motion using provided materials. Students participate in a Motion Station rotation in which they observe and record measurements of motion such as a pendulum swinging, a top spinning, and a ball bouncing (Lesson 4 Activity Guide). In Lesson 5, students use their observations to describe the direction and speed of motion or to note whether the object was at rest (DCI, UE.PS2A.c). In Lesson 6, students use their observations and measurements from the Motion Station rotation activity in Lesson 4 to identify patterns of motion (CCC, Patterns) such as a pendulum swings back and forth, a ball bounces up and down, and a top spins in a circle, fast at first, then more slowly (Lesson 6 Activity Guide). Finally, students use the patterns they have identified to predict the motion of objects pictured on motion cards (Lesson 6 Resource). The integration of the three dimensions, provides the opportunity for students to gain a deep understanding of LSSS 3-PS2-2.
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	The content was 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.
	3c) 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.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **4. DISCIPLINARY LITERACY:** Materials have students engage with authentic sources and incorporate speaking, reading, and writing to develop scientific literacy. ☒ Yes ☐ No	**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 increase in higher grade levels and courses.	**N/A**	
	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. Throughout the modules, students are regularly provided with opportunities to ask, organize, and refine questions using the Driving Question Board. Materials additionally promote speaking about scientific ideas through discussion strategies such as Socratic Seminars. Student Logbooks provide students with a place to record observations and communicate scientific thinking supported by evidence. In Module 2, students participate in an "inside-outside circle" discussion where they use knowledge developed throughout the unit to provide scientific evidence to support their understanding of how to "prevent a storm from becoming a disaster," the essential question for the unit. In Module 3, Lesson 1, students act as whale watchers. They watch a few videos of whales then add notes to the notice and wonder charts in their Science Logbooks (Lesson 1 Activity Guide) as they watch them. After each video, students are to share what they noticed and wondered. In Module 4, Lesson 28, students participate in a Socratic Seminar to answer the essential question, "Why do objects appear to move differently in space

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			than on Earth?" Students respond to each other directly, asking for evidence, and posing questions to extend the learning conversation.
	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**	There is variability in the tasks that students are required to execute. Students are regularly engaged in a variety of tasks such as, modeling phenomena, conducting investigations to explain phenomena, and designing solutions to problems. In Module 1, Lesson 3, students work in pairs or small groups to complete a Frayer model graphic organizer in their Science Logbooks (Lesson 12 Activity Guide A). The teachers constructs a class Frayer model as students share their work from each section of the model. In Module 2, Lesson 13, students model one effect of organisms living in groups by investigating the temperature difference between a single test tube, placed in a bag of ice, to that of a test tube placed within a bundle of other test tubes and placed in a bag of ice. The teacher records the corresponding initial and ending temperatures in a class data chart. Students analyze the data and conclude that the test tube within the bundle has a higher ending temperature than the single test tube. In a class discussion, students explain that the model represents penguins living in groups and explains that doing so helps them stay warm. In Module 3, Lesson 22, students participate in a simulation to learn how the color of fur can aid or hinder an animal in hiding from a predator. Students act like the predator to pick up "mice" (pieces of paper) in a certain time limit. Students use their experience to deepen their understanding of how organisms can have advantages in surviving that are different from other organisms of the same species. In Module 4, Lessons 23-27, students work through the engineering design process to design, construct, and refine a device that uses magnets to solve the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			problem of a tools floating away from an astronaut in space.
	4d) 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 in the materials but not taught in isolation of deeper scientific learning.	**Yes**	The 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 terms. Modules have key terms that students learn through investigations, models, explanations, class discussions, and other experiences. For example, in Module 1, Lesson 12, students learn the formal definition of "climate" only after having had multiple experiences in previous lessons analyzing data related to weather in an area over time. Students then use their understanding of the term climate and create a Frayer model that includes the definition, characteristics, examples, and nonexamples of the term climate. In Module 3, Lesson 2, after students sort photographs of whales into different groups based on common characteristics, the teacher introduces students to new vocabulary "species" and explains that organisms with common characteristics usually belong to the same species. Then students apply their understanding of the new terminology by using common characteristics to classify other organisms according to their species. In Module 4, Lesson 1, students watch a video about movement in space. Before the students watch the video, the teacher prompts students to "focus on movement, or motion, of the soccer ball," and then explains that motion "describes the act or process of movement." Once students finish watching the video, they write what they noticed and wondered about the motion of the soccer ball. Throughout Concept 1, students continue to develop their understanding of the term "motion" as they learn more about speed, direction, and rest.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
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 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 lessons within and across each unit are organized to support learning through a natural progression. Students engage with and build an 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 disciplinary core ideas, science and engineering practices and crosscutting concepts build upon each other throughout the course of study. Throughout each module, the class creates a driving question board to relate concept questions and guide upcoming lessons. The driving question board helps to focus the progression of learning for the anchor phenomenon. The science and engineering practices, crosscutting concepts, and disciplinary core ideas are coherently sequenced across all of the lessons and continuously reinforced throughout the modules. Lessons are organized around a storyline, such as the 1900 Galveston Hurricane in Module 1. In this module, students employ the three dimensions as they "explore the Cause and Effect (CCC) relationship between weather hazards and resulting damage (DCI, UE.ESS3.Ba) as they Develop a Model (SEP) to describe what happened during the 1900 Galveston hurricane." In Lesson 2, students work together to generate an anchor model including weather conditions and events associated with hurricanes to help explain what caused the destruction and loss of life in Galveston. As they gain understanding while working through the module, they update the anchor model to include evidence to support the explanation. In Lesson 10, students add that weather conditions are affected by seasonal changes. In Lesson 15, students add that identifying the weather patterns of a location's

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			climate can help people predict future weather events. In Lesson 19, students provide evidence of weather hazards that damaged the city. In Lesson 26, students provide evidence of solutions that warn people of weather hazards and prevent or reduce their impact. Throughout the module, students build an understanding of the CCCs as they identify weather Patterns and Cause and Effect relationships between weather patterns and destruction. While doing so, they additionally deepen their understanding of DCIs ESS2D.a, ESS2D.b, ESS3B.a, and ETS.UE.1B.a. Motion in space provides the anchor and storyline for Module 4. In this module, students employ the three dimensions as they engage in Asking Questions and Carrying Out Investigations (SEP), to observe, measure, and describe motion (DCI, UE. PS2.A.a and UE.PS2A.b) to find patterns that help predict future motion (CCC, Patterns). In Lesson 3, students generate an anchor model to compare the movement of a soccer ball on Earth to that of a soccer ball in space. In Lesson 6, students update the anchor module with newly learned descriptions of motion. In Lesson 9, students update the anchor model to include a new understanding that patterns of motion exist on Earth and that these patterns make it possible to predict future motion, but patterns of motion are more difficult to observe in space making it more difficult to predict motion in space. In Lesson 13 and 14, after investigating forces using an Atwood machine, students update the anchor model to include the effects balanced and unbalanced forces have on objects. Students add gravity as a force that affects the motion of objects on Earth. In Lesson 17 and 18, after using the Atwood machine to investigate forces that cause an object to remain at rest, students update the anchor model to include friction as a force that opposes motion. In Lesson 21, after investigating the effects of noncontact forces like magnets, students wonder if magnets could be used as a force to secure objects that float in space. In Lessons 24-27, students use

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			the knowledge gained throughout the module to design and create a prototype that uses a magnet to secure an astronaut's tools to a toolbox in space. Throughout the module, students repeatedly use SEPs and CCCs to investigate, measure, observe, describe, and predict motion, deepening their understanding of DCIs UE.PS2A.a, UE.PS2A.b, UE.PS2A.c, UE.PS2B.b, and UE.PS2B.b. Consideration of the Louisiana Science Learning Progressions is provided under the heading Building Knowledge Across Levels in the module preface. In this section, the materials provide an explanation of how students' Level 2 learning of the Louisiana Student Standards for Science supports Level 3 learning and beyond. This provides teachers with an understanding of how learning is coordinated over time to support student mastery of the standards before and within Level 3.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's 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 mathematical thinking when applicable. Students are regularly called on to apply mathematical skills appropriate in the context of their learning and math connections are made explicit through clear references. In Module 1, Lesson 8, the materials suggest that students use academic language to compare values in bar graphs. The materials provide sentence stems to assist students in making comparisons such as, "(Month) had _____ inches more precipitation than (Month)." This supports Louisiana Student Standards for Mathematics (LSSM) 3.MD.B.3, solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. In Module 1, Lesson 13, there is an opportunity for teachers to have students make a connection between the CCC of Patterns and the Standard Mathematical Practice 8, Look for and Express Regularity in Repeated Reasoning. The materials provide teachers with sentence stems for students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to use to make generalizations about climate patterns. Students should be familiar with the language of the stems from working with Mathematical Practice 8. In Module 4, Lesson 19, there is a teacher note which gives teachers a suggestion to "provide a ruler at the Orientation Station to allow students to generate measurement data." This connects with the LSSM 3.MD.B.4, measure lengths using rulers marked with halves and fourths of an inch. Occasionally, the materials introduce students to math skills beyond their grade level. However, the materials provide suggestions to assist teachers in supporting students when applying complex skills. For example, in Module 2, Lesson 19, students are asked to measure the height of a plant to the nearest half centimeter. The materials explain that students should have had experience using a ruler to record measurements of length in halves or fourth of an inch (LSSM 3.MD.B.4) and representing fractions on a number line (LSSM 3.NBT.A.2); however, they may not be familiar with recording measurements in centimeters. Therefore, the materials suggest teachers provide students with rulers showing only whole and half centimeters.
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, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials provided. Each module provides a Teacher Edition that includes a Module Overview with an Introduction, Module Map, Focus Standards, Three Dimensions at a Glance and In Detail, Key Terms, Advanced Materials Preparation, Safety Considerations, Background Knowledge, and Additional Reading for Teacher. The Teacher Background section provides scientific background about the DCIs of the unit. The 3-D Strategies sections detail explicit techniques for highlighting the SEPs, DCIs, and CCCs. Sample prompts and conversation guides for class discussions and Teacher Notes are also provided. The Teacher Note sections offer guidance to teachers on how to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			implement strategies to engage student thinking, as well as on how students should respond to certain questions or activities in lessons. The Introduction provides the essential question of the module along with an overview of the Concept Focus Questions and lessons that guide student learning. For example, in Module 1, Weather and Climate, the essential question is "How can we prevent a storm from becoming a disaster?" The Concept Focus Questions are: Concept 1, "How do we describe weather?" Concept 2, "How do people know what weather to expect?" and Concept 3, "How can we plan for severe weather?" For additional content support and to build background knowledge, the materials suggest that teachers read materials such as "Air, Water, and Weather: Stop Faking It! Finally Understanding Science So You Can Teach It," by William C. Robertson. An explanation of the integration of the three dimensions, specific to the module and an explanation of the learning progression is also provided. Teacher Notes are provided throughout the lessons in the sidebar for additional guidance. For example, in Module 2, Lesson 2, as the students are discussing what they notice about a fossil of a butterfly, the teacher is directed to additional resources to support understanding of the differences between butterflies and moths. At the end of each module's Teacher Edition, appendices provide teachers with support before and during instruction. Appendix A, Module Resources, includes a set of lesson-specific resources to aid instruction, such as full-size photographs, informational texts, investigation procedure sheets, materials preparation, and supplemental information. Appendix B, Module Storyline, includes a more detailed version of the Module Map in the Module Overview that summarizes the progression of concepts in the module. Appendix C, Module Glossary, includes

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			level-appropriate definitions for new terms in the module and the lesson in which the definition appears. Appendix D, Domain-Specific Words, General Academic Words, and Spanish Cognates, includes a list of key terms in the module and their Spanish cognates to support English language development.
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. Module overviews include a pacing guide with alternative suggestions for differentiation and diverse learner supports promoting equitable participation. The sidebar in lessons of all modules contain notes on differentiation strategies the teacher can incorporate to support learners who may need additional support or more of a challenge. For example, in Module 1, Lesson 23, the materials suggest that English learners may benefit from additional scaffolding in the form of sentence frames such as, "We can improve our seawall by ______." In the same lesson, an extension suggestion is provided for an additional challenge for successful groups. The extension note suggests that these groups "retest their seawall designs under different conditions… by [providing] students with more water or ask them to increase the incline of their ramp." In Module 2, Lesson 10, a differentiation note suggests that teachers "consider assigning the columbine flower poster to a group of students performing above grade level as it can be more difficult to identify the characteristics of plants and explain how they help a plant survive." In Module 4, Lesson 9, a differentiation note suggests that some students may benefit from additional support with interpreting the line plot. It is suggested that the" teacher should meet with

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			these students in a group to review the process the class followed in the previous lesson and help them apply that thinking to the new line plot.”
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.	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The online teacher’s manual may be downloaded as a PDF file or used online. The modules contain the information to teach the lesson including links to relevant videos and reading materials. The material laboratory kits can be purchased from an external source. In some cases, the additional reading materials would need to be accessed separately. For example: in Module 1, “Hurricanes!” by Gail Gibbons, “Tornadoes!” by Gail Gibbons, and “Marvelous Mattie: How Margaret E. Knight Became an Investor” by Emily Arnold McCully; in Module 2, “A Butterfly if Patient” by Dianna Hutts “Aston and Amos and Boris” by William Steig; in Module 3, “Here Come the Humpbacks” by April Pulley Sayre; and in Module 4, “Moonshot: The Flight of Apollo 11 by Brian Floca.”
	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**	The 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. General safety guidelines provided as the start of each module include safety measures, such as reviewing safety guidelines with students before each activity, students wearing safety goggles during investigations involving equipment, and students never placing investigative materials in their mouths. In Module 1, students complete hands-on, minds-on activities that involve the use of devices to gather weather data and the use of clay and water to build a seawall prototype in an engineering challenge. In addition to safety notes, important safety measures

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to implement in Module 1 include the following: 1. Teachers must explain to and review safety expectations with students before each activity. 2. Students must listen carefully to and follow all teacher instructions. Instructions may be verbal, on classroom postings, or written in the Science Logbook or other handouts. 3. Students must demonstrate appropriate classroom behavior (e.g., no running, jumping, pushing) during science investigations. Students must handle all supplies and equipment carefully and respectfully. 4. Students and adults must wear personal protective equipment (e.g., safety goggles) during investigations that require the use of such equipment. In Module 2, Lesson10, students learn the seriousness of working with and observing live organisms. Students are reminded that organisms can be harmed or die if not treated with respect and care. In Module 4, Lesson 10, it is suggested that teachers consult with the school's physical education teacher prior to the lesson to identify safety rules for students to follow before participating in the Scooter Board Station activity. It is additionally recommended that teachers and students watch for objects on the floor that could cause slips or falls, make an effort to control the scooter at all times so as not to collide with other students, avoid standing on a scooter board, and avoid holding a pencil while on a scooter board.
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. There are 4 modules within the grade level. Each module includes between 28-30 lessons which are approximately 45 minutes in length but may extend past one class period of science. Additionally, extension activities are provided within units to deepen understanding, as time permits.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Module 1 includes 29 lessons, Module 2 contains 28 lessons, Module 3 contains 28 lessons, and Module 4 contains 30 lessons. There is a total of 115 lessons which allows teachers flexibility with time and accounts for interrupted days that may occur during the school year. Extension opportunities are suggested, as time permits, to extend the learning. For example, In Module 1, Lesson 23 states, "Based on time available, consider having groups create visual aids to use during their presentation." In Module 2, Lesson 25, another suggestion is provided to allow groups to revise their design solutions if time permits.
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 (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Multiple types of formative and summative assessments are embedded into the content materials and assess the learning targets. The modules contain a variety of performance based tasks, investigations, projects in which students must design solutions to real-world problems, and formative assessment questions embedded in lessons. Formative assessments include nonverbal signaling, teacher observation, and Conceptual Checkpoints. For example, in Module 1, Lesson 9, teachers may formatively assess student understanding as students use nonverbal signals to represent if they agree or disagree with shared student responses. In Module 4, Lesson 9, students participate in a Conceptual Checkpoint to demonstrate their learning about patterns of motion. The teacher plays the slingshot ride video, and allows students to observe the motion of the ride. Then the teacher displays the Conceptual Checkpoint scenario, reads the scenario aloud to students, and instructs them to carefully observe the diagram. The teacher asks them to record responses in their Science Logbooks (Lesson 9, Activity Guide B). Conceptual Checkpoints assesses the mastery of knowledge identified in each concept's standard(s). There is one checkpoint per concept and includes evaluation guidance.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Summative assessments include performance tasks and End-of-Module Assessments. For example, each module concludes with either an Engineering Challenge or a Science Challenge to assess student ability to apply conceptual knowledge to solve a real-world problem. There is one challenge per module and rubrics are provided. For example, in Module 4, Lessons 23 -27, students participate in a summative performance task in which they design a prototype toolbox that will secure tools for astronauts in space. Each module provides an End-of-Module Assessment that gives students the opportunity to demonstrate the knowledge and skills they have acquired throughout the module in the context of one or more phenomena. There is one assessment per module, and rubrics are provided. In Module 2, students finalize a Module Concept Statement which allows for summative assessment of student knowledge of how the DCIs and CCCs of the unit are linked. The materials provide a sample Module Concept Statement which shows an example of what a student might complete for this Module.
	Required **8b)** Assessment items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on the integration of the three dimensions. The End-of-Module Assessments and the tasks ensure that students use the Science and Engineering Practices to fully integrate their understanding of the Disciplinary Core Ideas and the Crosscutting Concepts. In Module 1, Lessons 21-26, students engage in an Engineering Challenge in which they use the engineering design process as they engage in Designing Solutions (SEP) to reduce the impact of a storm surge. In developing the design, students must consider different criteria and constraints. Students apply what they have learned about weather, climate, and the effects weather hazards (DCI, UE.Ess3B.a) to design a seawall that can help

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			reduce the problems caused by coastal flooding (CCC, Cause and Effect). In Module 2, Lessons 22-25, students engage in Defining Problems (SEP) that are affecting (CCC, Cause and Effect) the monarch population to decline, then engage in Developing and Using Models (SEP) to design a solution to help monarchs survive in a changing environment (DCI, UE.LS4D.a). Students then Engage in Argument from Evidence (SEP) supporting the merit of a design solution. In Module 3, the End-of-Unit Assessment includes questions that integrate the application of the three dimensions. For example, question #4 requires that students Analyze and Interpret Data (SEP) to identify Patterns (CCC) in traits) to determine which trait, thin or thick shell, is most beneficial to a sea snail's survival (DCI, UE.LS4.Ba). In the Engineering Task that begins in Lesson 23 of Module 4, students watch a video of an astronaut who loses a tool bag while on a spacewalk and identify the problem (SEP, Defining Problems) faced by the astronaut. Then students use the design process to design a toolbox that can be used to secure the astronaut's tools while considering the criteria that the solution must accomplish, as well as the possible constraints. Students use the materials provided, including magnets, to plan and build their design. In Lesson 26, students test their prototypes, designed in the previous lessons, to see if the magnetic interactions (DCI.UE.PS2B.b) work to solve the problem. In the Land section of Lesson 27, students must finalize the integration of the DCI and CCC (Systems and System Models) to explain how the various parts of their design worked together using the properties of magnetism to solve the problem.
	8c) Scoring guidelines and rubrics **align** to performance expectations, and incorporate criteria that are specific, observable, and measurable.	**Yes**	Scoring guidelines and rubrics for assessments align to performance expectations

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and incorporate criteria that are specific, observable and measurable. For example, question 1 of Module 1, End-of-Module Assessment, asks students to analyze temperature and precipitation graphs to predict future weather conditions in New Orleans, Louisiana and to use evidence from the graphs to support their prediction. The context of this question is aligned to LSSS 3-ESS2-1, "Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season." A scaled rubric for assessing student performance on this question is provided. Question 2b of Module 2, End-of-Module Assessment, asks students to analyze photographs of otters and state an argument supported by evidence as to which otter is the most likely to survive in the given environment. This question is aligned to LSSS 3-LS4-3, "Construct and support an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all." An exemplar student response is provided and a scaled rubric for assessing student performance is also provided. The scoring guidelines for Question 2, End of Module Assessment for Module 3, relates to LSSS 3-LS1-1. Students label a model of the stages in the life cycle of a plant and the life cycle of a ladybug (2a). The answer key shows that both organisms have birth, growth and development, and death as commonalities in their respective life cycles. In Module 4, End Of Module Assessment, students observe distance traveled and make a prediction of how far a sled might go based on the data (3b). For the rubric category labeled as "correct or reasonable response with sufficient detail or evidence provided," the student must "record a reasonable distance for all three sleds" (3a) and "correctly predict the motion of the sled and provide sufficient

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			evidence to support their response" (3b). This relates to LSSS 3-PS2-2 as students make observations and/or take measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

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
I: Non-negotiable Criteria of Superior Quality[2]	1. Three-dimensional Learning	**Yes**	Students have multiple opportunities to consistently demonstrate the application of the three dimensions of the science standards. The majority of the materials integrate the Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas to support deeper learning.
	2. Phenomenon-Based Instruction	**Yes**	The majority of instructional time is centered around students observing and explaining phenomena and/or designing solutions. Students are asked to observe and explain phenomena and design solutions, which provides the purpose and opportunity for learning.
	3. Alignment & Accuracy	**Yes**	All (15 out of 15) of the Louisiana Student Standards for Grade 3 are appropriately addressed by the instructional materials with minimal time spent on content that is outside of the grade level.
	4. Disciplinary Literacy	**Yes**	Students regularly engage in a variety of tasks which require students to speak and write about scientific phenomena and engineering solutions. Materials address the necessity of using scientific evidence to support ideas. Vocabulary is introduced only after students have had an opportunity to build conceptual understanding through investigative, analytical, hands-on learning.
	5. Learning Progressions	**Yes**	The lessons within and across each unit are organized to support learning through a natural progression. Students engage with and build an

[2] Must score a "Yes" for all Non-negotiable Criteria to receive a Tier I or Tier II rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
II: Additional Criteria of Superior Quality[3]			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. Students apply mathematical skills when applicable.
	6. Scaffolding and Support	**Yes**	Lessons include support materials for strengthening Teacher Background Knowledge, 3-D Strategies detailing explicit techniques for highlighting the SEPs, DCIs, and CCCs, sample prompts and conversation guides for class discussions, Teacher Notes, and appropriate suggestions for differentiating instruction for diverse learners.
	7. Usability	**Yes**	The total amount of content is viable for the school year and safety guidelines are embedded in the curriculum. The modules contain the information needed to teach including links to relevant videos and reading materials. Laboratory kits and text sets can be purchased from an external source.
	8. Assessment	**Yes**	Assessment items and tasks are structured on the integration of the three dimensions. Scoring guidelines and rubrics are aligned to performance expectations and incorporate criteria that are specific, observable and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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

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: **PhD Science** Grade/Course: **4**

Publisher: **Great Minds** Copyright: **2018**

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

Tier I, Tier II, Tier III Elements of this review:

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

To evaluate each set of submitted materials for alignment with the standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicator in Column 2, then the materials receive a "No" in Column 1. Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria in order for the review to continue to Section II.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

[4] The Grade 4 review was conducted during the 2017-2018 round and originally published 5/18/2018.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria 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 teach the science and engineering practices, crosscutting concepts and disciplinary core ideas separately when necessary but they are most often integrated to support deeper learning.	**Yes**	The instructional materials are designed so that students can develop scientific content knowledge and skills by interacting with the three dimensions. Students have multiple opportunities throughout each module to consistently demonstrate application of the three dimensions, and the three dimensions are most often integrated with one another to support a deeper learning of the performance expectations. Throughout the modules, students interact with several different science and engineering practices, disciplinary core ideas, and crosscutting concepts. Module 1, The Changing Earth, addresses Standard 4-ESS2-1. The crosscutting concept, cause and effect, is addressed several times throughout the module. For example, students view a photograph of Deer Creek Falls (page 51) and are asked what may have caused the holes in the rocks. In the module, they also investigate various forces of erosion to determine the cause and effect relationships between rocks and erosion (page 70). Cause and effect relationships are routinely identified, tested, and used to explain change as called for by standard 4-ESS2-1. Module 2, Energy, addresses Standard 4-PS3-1. The disciplinary core idea UE.PS3A.a is appropriately addressed in Lessons 6 and 7 (page 49). In the lessons, students

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			explore the relationship between speed and energy when they use various amounts of energy to pull back a car, windmill, and soccer ball. The science and engineering practice, constructing explanations and designing solutions, is also appropriately addressed throughout the lessons (pages 49-58). In Lesson 7, students learn how to quantify speed before they conduct an investigation. Students also participate in stations, make observations about the impact that energy has on various objects, and answer questions to construct an explanation such as, "Where do you think the energy came from at the stations?" Module 3, Sensing the Environment, addresses standard 4-LS1-1. In the module, the disciplinary core idea UE.LS1A.a is appropriately addressed. In Lesson 4, before students experience sense stations, the teacher explains that a structure is part of an animal's body and it serves a function (page 42). Once students experience the stations and have an understanding of this idea, they write a response in their science logbooks. For example, they explain how skunks might sense insects underground and use structure and function, crosscutting concept, to explain the skunk's body parts. Module 4, Light: Sight and Communication, addresses Standard 4-PS4-2. The science

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and engineering practice, developing and using models, is appropriately addressed. In Lesson 9, How Color Affects What We See Investigation, students develop a model to describe the interactions between color of light and how the color of an object affect what we see (pages 23-24). Students connect this information to what Amelia Earhart saw during her final flight as an aviator pilot.
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 learning a majority of the time.	**Yes**	The majority of instructional time is centered around students observing and explaining phenomena and/or designing solutions. In each module, students are asked to observe and explain phenomena and design solutions, which provides the purpose and opportunity for learning. Each module includes anchor and investigative phenomena; the investigative phenomena help students explain how and why the anchor phenomena occurs in the real world. For example, the anchor phenomenon for Module 1, The Changing Earth, is “How did the Grand Canyon’s features form?” In Lessons 1 and 2, the focus question is, “What can we discover in an unknown canyon?” In Lessons 3 and 4, the focus question is, “What do the Grand Canyon rock layers reveal?” Both questions lead students to understand how the Grand Canyon’s features were formed.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			The modules' investigative phenomena are related to the anchor phenomena and aide students in explaining how and why the anchor occurs in the real world. For example, in Module 2, Energy, students explore an anchor phenomenon, "How Do Windmills Change Wind into Light?" The lessons throughout the module are centered around several investigative phenomena and structured to help students explain how windmills work. Students make observations and generate questions about how windmills harness the wind, how windmills generate electricity, how energy is transferred in hand-crank flashlights, and how energy is transformed in various devices. After students complete the investigations, they use the information that they learned to explain how a windmill changes wind into light. Students are also asked to design solutions, compare various solutions, and make improvements to their design solutions using feedback from their peers. For example, in Module 4, Light: Sight and Communication, students investigate the phenomenon of Amelia Earhart's famous flight and the reasons that she did not complete her journey. After learning about how we see and how light affects vision, students design a runway that could be seen in various conditions. Students use the engineering process to refine and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			revise their models and present them to their peers for feedback. Students are asked to think about which solutions worked better (page 140) and look for patterns in successful designs.
Non-Negotiable (only reviewed if criteria 1 and 2 are met) **3. ALIGNMENT & 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**	93% (13 out of 14) of the Louisiana Student Standards for Grade 4 are appropriately addressed by the instructional materials. Standard 4-ESS2-3 is not addressed in the curriculum. Module 1, The Changing Earth, addresses Standards 4-ESS1-1, 4-ESS2-1, 4-ESS2-2, 4-ESS3-1, 4-ESS3-2. In the module, students explore the anchor phenomenon, "How did the Grand Canyon's Features form?" For example, standard 4-ESS2-2 is fully addressed when students analyze and interpret data (SEP) from a volcanic map (page 114), examine plate tectonics and large-scale system interactions (DCI) by interpreting a relief map, and identify patterns (CCC) in the location of mountains and occurrences of earthquakes. Students also engage in a writing task when they predict where a canyon might be located using a relief map (page 122). Module 3, Sensing the Environment, addresses Standards 4-LS1-1 and 4-LS1-2. During the module, students visit "Sense Stations" and conclude that humans and animals can sometimes sense and respond

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to information in their environment in different ways. Students are asked to use the evidence gathered at the stations to construct an explanation (page 42). As students visit the stations, they also recognize that animals have structures that have a specific function (DCI). Throughout Lesson 5 (pages 46-50), students understand how an animals' sensory system is different from that of humans, which addresses the crosscutting concept, systems and system models. For example, they explore what causes elephants to sense a rainstorm. Likewise, Modules 3 and 4 addresses standards 4-PS4-1 and 4-PS4-2. Students develop models (SEP) to explore and observe patterns (CCC) in waves as called for by the standards.
	REQUIRED **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	All reviewed content was accurate, up-to date and aligned with the most current and widely accepted explanations. No evidence could be found of incorrect or out of date science explanations.
	3c) In any one grade or course, instructional materials spend minimal time on content outside of the course, grade, or grade-band.	**Yes**	The instructional materials spend minimal time on content outside of the course or grade-band. 81% of the addressed standards focus on Louisiana Student Standards in 4th grade. The three standards that do not fall within the current Standards are 3-5ETS1-2, 3-5ETS1-3, 4-PS4-3. These standards are addressed in Module 1, Changing Earth,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and Module 4, Light: Sight and Communication. For example, in Module 1, Lessons 11-16 focus on Standard 3-5-ETS1-2. Students complete an engineering challenge to design a structure to reduce the damage of erosion. Module 4 Lesson 20 -23 includes engineering design challenges that target standards 3-5-ETS1-2 and 3-5ETS1-3 asking students to develop and build a solution to increase visibility. Although these activities do not explicitly address Louisiana Student Standards for Science, they enhance teaching and learning, are connected to other standards, and do not distract from the overall learning targets.
Non-Negotiable (only reviewed if criteria 1 and 2 are met) **4. DISCIPLINARY LITERACY:** Materials have students engage with authentic sources and incorporate speaking, reading, and writing to develop scientific literacy. ☒ Yes ☐ No	**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 increase in higher grade levels and courses.	**Yes**	Students have multiple opportunities to regularly engage with authentic resources that represent the language and style that is used and produced by scientists. Authentic photographs, media content, graphs, and articles are regularly included in the materials. In Module 1, Changing Earth, students engage with authentic photographs that show the Grand Canyon in the past and present. For example, a photograph of Powell's 1871 Expedition Team to the Grand Canyon is included (page 19) to help students gain an understanding of how the Grand Canyon's features were formed.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Likewise, in Module 2, Energy, students examine photographs from FEMA after Hurricane Harvey in Houston (page 126). While learning about wind energy, students look at a diagram of a windmill (page 22) that is generating electricity in homes. In Model 2 (page 68), after completing an investigation and gathering data, students create a bar graph to assist with analyzing data and understanding the relationship between speed and energy. In Module 3, Sensing Their Environment, students view a video, GCSE Science Revision- Types of Waves, to get an idea of how waves caused by earthquakes and ocean waves. Authentic locations, scientists, and research are presented in the video. Also, in Module 3 (page 21) students read an excerpt from a "Popular Science" article to understand how elephants are able to detect rainstorms.
	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. Students discuss scientific phenomena using authentic sources and use scientific evidence from the sources and investigations to support scientific claims and ideas. Throughout the modules students have multiple opportunities to speak and write the phenomena. In Module 1, The Changing Earth, students speak and write

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			about how Earth's processes have changed the Grand Canyon's features over time, the anchor phenomenon. In Lesson 1, students review authentic photographs of the Grand Canyon, complete a "Notice and Wonder" chart in a science log book, and record observations based on what they notice about the rock layers. In Lesson 4, students make a claim about which layer of rock was formed first and which layer was formed last. In Lesson 5, students make claims about how the holes formed in the rocks. Students discuss their claims while considering the question, "How did the Grand Canyon's Features Form?" In Module 2, Using Science Logbook, students are asked reflection questions after completing investigations. For example, students are asked to identify patterns in data, explain the differences using evidence from the experiment, and draw conclusions about the relationship between speed and energy (page 14). In Module 3, Sensing the Environment, students complete a research project to determine how plants respond to their environment. During the project, students are asked to make claims and use scientific evidence to support their claims. In Module 4, Light: Sight and Communication, students participate in a class discussion about Amelia Earhart's

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			flight, and they are asked to cite evidence from their experiments to explain their thinking (page 14). Opportunities for students to engage in speaking and writing about phenomenon are made meaningful through the consistent use of an anchor phenomenon setting a purpose for learning in each module.
	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	There is variability in the tasks that students are required to execute throughout the instructional materials. Students are asked to engage in a variety of tasks including making observations, making claims, creating models, and designing solutions to problems. In Lesson 2, Module 1, The Changing Earth, the teacher leads the class in developing an anchor model (page 25) of how the Grand Canyon was formed. Likewise, in Module 4, Light: Sight and Communication, students draw models to explain different aspects of sight (page 7, Model 4 Activity guide). In Module 2, Energy, students complete an investigation plan to determine which objects use a little energy (page 48) and which objects use a lot of energy. After the investigation, students conduct a race to investigate speed (page 58).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Module 3, Sensing the Environment, Lessons 4 and 5, students make observations as they visit sense stations (page 42).
	4d) 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 in the materials but not taught in isolation of deeper scientific learning.	**Yes**	The materials provide students ample opportunity to build scientific vocabulary over the course of study. Vocabulary is used throughout the materials as the students complete their investigations and participate in class discussions for deeper learning. For example, in Module 1, The Changing Earth, students have multiple experiences with describing rock layers. The teacher explains that geologists refer to the big stripes on rocks as layers. Students continue to explore the concept of layers through investigations and begin to construct an understanding of the concepts as they progress through the module. In Module 2, Energy, students are asked to construct a model of how to harness the wind from a windmill (pages 27 and 28). The teacher asks the question, “What could be moving through the wires?” The text prompts the teacher to introduce the students to the term energy and then explains how energy is useful.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Module 3, Sensing the Environment, the term wave is not introduced to students until they experience the concept and draw a model of it. Students create ripples in water and draw what the ripples look like. Later in the module, the teacher throws a piece of paper and asks students to observe what happens. After this discussion, the terms response and behavior are discussed.
SECTION II: ADDITIONAL INDICATORS OF QUALITY			
Additional Criterion **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 support student mastery of the standards. The progression of learning is coordinated over time, clear and organized to prevent student misunderstanding. Throughout each module, the class creates a driving question board to relate concept questions and guide upcoming lessons. The driving question board helps to focus the progression of learning for the anchor phenomenon. The science and engineering practices, crosscutting concepts, and disciplinary core ideas are coherently sequenced across all of the lessons and continuously reinforced throughout the modules. For example, in Module 1, students explore rock layers in Lessons 1-4, which focuses on Standard 4-ESS1-1. Throughout the lessons, students identify patterns (CCC) in rock formations and develop an explanation (SEP) about how they formed.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Lessons 5-13, students investigate the concepts of weathering and erosion, which focuses on Standard 4-ESS2-1. Students investigate (SEP) the effects (CCC) of water, ice, and wind on weathering and erosion. In Module 3, Lesson 1-3, students explore elephants and how they sense rainstorms. Next, in Lessons 4-6, they develop an understanding of animal and elephant senses, which addresses Standards 4-LS1-1 and 4-LS1-2. The science and engineering practice of developing and using models is presented several times throughout Module 3. Eventually, students independently create models. For example, students investigate a wave tank and the motion of a boat in the tank and later create a wave model in groups using a slinky.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's 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 mathematical thinking when applicable, and in some cases, mathematical standard correlations are explicitly stated. For example, the Module 2, Lesson 4, Interdisciplinary Connection: Mathematics, addresses math Standards 4.OA.A.1 and 4.MD.A.1. Students use estimation to determine the distance a car is pulled back during the investigations that are centered around speed and they use comparative phrases and measure.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Module 3, Lesson 1, addresses math Standard 4.MD.2, solve word problems involving distance. Students are asked to think about what the environment is like in a town 150 miles away. Module 4, Sight: Light and Communication, addresses math Standard 4.GA.1. Students determine that light travels in rays and connect it to the mathematical geometry term "ray."
Additional Criterion **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, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (i.e. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials, including support in three-dimensional learning, scientific background knowledge, suggestions for diverse learners, and understanding learning progressions. The modules have sections, Spotlight on the Three Dimensions, to help teachers develop a deeper understanding of the science and engineering practices, crosscutting concepts, and disciplinary core ideas that are addressed in the module. For example, Module 2, Spotlight on the Three Dimension states, "Each lesson in the module identifies the components of three-dimensional teaching and integration. However, simply representing the three dimensions in the lessons does not constitute three-dimensional teaching and integration...At the end of the module, students draw on everything they have learned about energy

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and use the three dimensions to create a device that harnesses energy." The "Teacher Note" sections throughout the modules also offer guidance to teachers on how students should respond to certain questions or activities in the lesson and how to address common student misconceptions. In the Spotlight on Disciplinary Core Ideas, Module 2, teachers are provided with information on how to reduce misconceptions regarding the types of energy (page 39). Likewise, the Module 2, Formative Assessment Opportunity, prompts the teacher to meet with students individually or in a small group to address misconceptions about energy before the End-of-Module Assessment (page 153). The materials include speaking and listening supports and resources to deepen scientific knowledge for both the teacher and students. The Implementation Guide includes question stems to support student discussion, and background content knowledge to support teachers' understanding of the concepts. For example, in the guide there are Collaborative Conversation Prompts (page 27) and an Energy overview to assist teachers with content background information (page 29). Likewise, in Module 2, there is an additional reading for teachers, "Energy: Stop Faking It" and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			"Teaching Energy Across the Sciences (page 11)."
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	There are appropriate suggestions and materials for differentiated instruction which support varying student needs. The teacher's manual provides suggestions for instructing diverse learners, suggestions for addressing common student difficulties to meet the standards, and learning progress/pacing guides. For example, in Module 2, there are boxes that provide information on how to support diverse learners (page 40). One suggestion differentiates the lesson by allowing students to arrange their ideas on sentence or stick notes. The materials also provide guidance for addressing student misconceptions. For example, Module 3, Formative Assessment Opportunity, prompts the teacher to meet with students individually or in a small group to address misconceptions about sensing and responding to information before the End-of-Module Assessment (page 207). Learning progressions supports are also included in the materials. For example, in Module 1, Building Knowledge Across Grades, teachers are provided with

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			information on what students learned in grade 3 and how to connect that information to Earth's History, which is addressed in grade 4 (page 11).
Additional Criterion **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.	**Yes**	Text sets, laboratory materials, and other scientific materials are readily accessible through vendor packaging. The teacher's manual is online and may be downloaded as a PDF file or used online. The modules contain the information needed to teach the lesson including links to relevant videos and reading materials. The material laboratory kits can be purchased from an external source. For example, in Module 1, The Changing Earth, students complete an investigation that is centered around stations. The student's Science Logbook includes detailed instructions and a guide on how to complete the stations (pages 13-15). The teacher materials also include detailed set up instructions (pages 224-226) and procedure sheets that students can use as they complete the activity. According to the implementation guide, the material kits include all of the necessary materials to complete the lessons and can be purchased from an external source. However, additional reading materials are included at times but require extra effort on the part of the teacher at times. For example, in Module 1, Lesson 19, the teacher reads a passage to the students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			titled “How the Grand Canyon Was Formed,” which is included in the materials. In some cases, the additional reading materials would need to be accessed separately. Such as in Module 2, Lesson 2, where students read Wind Turbine Service Technician by Wil Mara (2013) at http://gmscience.link/1039. The link requires a registration to Epic and purchase of the book after 30 days.
	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**	The 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. For example, in Module 2, Lesson 10, the teacher is directed to discuss safety directions with students such as not looking directly into a light bulb or touching a hot lamp (page 85). There are also Safety Considerations for the teacher (page 13). The information includes guidance for safety procedures in a science classroom provided by NSTA. The Implementation Guide provides a detailed description of safety in the science classroom including addressing how students should behave and what they should wear (pages 10-12).
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for the school year. The four modules are

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			divided into lessons which are expected to last 45 minutes. For example, Module 1 includes 25 lessons, Module 2 includes 26 lessons, Module 3 includes 31 lessons, and Module 4 includes 27 lessons. There is a total of 109 lessons, which allows teachers flexibility with time and accounts for the interrupted days that may occur during the school year. Module 1, Page 88, states "The design process should take approximately three days but may vary as materials, redesign, and time allotted can impact the timeline for completion."
Additional Criterion **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 (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Multiple types of formative and summative assessments are in the instructional materials. In each module, conceptual checkpoints are embedded within the lessons and teachers have opportunities to address any misconceptions. At the end of each module, students complete an end of module assessment, which addresses all of the standards within the module. For example, in Module 3, Sensing the Environment, students learn about plant and animal structures. A formative assessment is included in the conceptual checkpoint (page 23). Students are asked to compare one plant and animal structure. Students are given "look for" tasks, and suggestions are given on how to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			address student misconceptions if they to do not master the concept. In Module 2, Energy, the end of module assessment includes assessment items that address each standard in the module. For example, standard 4-PS3-4 is addressed in number 3 of the end of module assessment. Students are asked to explain a model of a laptop that is powered by a solar panel. Students must use knowledge gained from experiences in the module as evidence to support thinking. Also, at the end of each module, there is an "End-of-Module" assessment which includes Socratic Seminars, Assessments, and Debriefs. Multiple types of formative and summative assessments are embedded into the content materials and assess the learning targets. In Module 2, students participate in a discussion about the stations that they complete in an investigation (page 37). The teacher is provided with guidance on to assess the students understanding in the "Formative Assessment Opportunity" box.
	REQUIRED **8b)** Assessment items and tasks are structured on integration of the **three-dimensions**.	Yes	Assessment items and tasks are structured on the integration of the three-dimensions. For example, the Module 1 End-of-Module Assessment assesses students' scientific understanding of the anchor phenomenon.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Students are required to explain how Earth's processes shape some of the Earth's features. Module 1 addresses standard 4-ESS2-1. In Lesson 5 the teacher materials include a formative assessment opportunity (page 49). Students explain how interactions between materials cause changes. Students are being assessed on their ability to describe changes as well as the cause and effect. This formative assessment task integrates the three-dimensions through the (SEP) constructing an explanation and the (CCC) by explaining what caused the changes and understanding how weathering causes changes (DCI). Module 3 addresses standard 4-LS1-2. Students analyze field notes from a team that is observing the responses of a serval in the wild (DCI). The students are instructed to construct an explanation of what sense the serval used to find its prey (SEP). Students are also asked to use cause and effect relationships (CCC) to determine why the serval responds in certain ways to the information received through its senses. In Module 4, while addressing standard 4-PS4-2, students develop models of Howland Island and revise the models as they obtain new information and understanding. Students develop the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			models (SEP) and investigate light through a shadow box and light reflection on various surfaces (page 72). As new information is discovered, the class adds to the anchor chart (page 57) detailing how light allows objects to be seen (DCI). Students use cause and effect relationships (page 31) as light reflects off of surfaces (CCC).
	8c) Scoring guidelines and rubrics **align** to performance expectations, and incorporate criteria that are specific, observable, and measurable.	**Yes**	Scoring guidelines and rubrics reflect performance expectations and give detailed specific criteria used in the grading of each item. For example, the end of module assessment in Module 1, The Changing Earth, addresses standard 4-ESS2-2. Question three asks students to analyze and interpret a map to describe areas that canyons may be located. According to the rubric that is included with the assessment, students must correctly select two possible canyon sites and explain how overlapping patterns (CCC) in mountain ranges (DCI) and volcanoes may indicate the presence of canyons. If the student correctly selects one possible canyon site and explains how overlapping patterns in mountains and volcanoes may indicate the presence of canyons or the student correctly selects two possible canyon sites, the student partially meet the performance expectations (page 182).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Module 3, Sensing the Environment, addresses Standard 4-LS1-2. Question 1 requires students to explain how they can hear a door slam using their knowledge of energy, waves, and receptors (page 214). Students must have an understanding of structure and function (DCI) to answer the question and explain the cause and effect of how something happens (CCC). A rubric is included and states, "If the student can successfully make the connection between energy, waves, and receptors the student's answer has met expectations (page 219)."

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.

Tier 3 ratings receive a "No" in Column 1 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
I: Non-Negotiables	1. Three-dimensional Learning	**Yes**	Students have multiple opportunities throughout each module to consistently demonstrate application of the three dimensions, and the three dimensions are most often integrated with one another to support a deeper learning of the performance expectations.
	2. Phenomenon-Based Instruction	**Yes**	The majority of instructional time is centered around students observing and explaining phenomena and/or designing solutions. Students are asked to observe and explain phenomena and design solutions, which provides the purpose and opportunity for learning.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	3. Alignment & Accuracy	**Yes**	93% (13 out of 14) of the Louisiana Student Standards for Grade 4 are appropriately addressed by the instructional materials and minimal time is spent on content that is outside of the course.
	4. Disciplinary Literacy	**Yes**	Authentic photographs, media content, graphs, and articles are regularly included in the materials. Students discuss scientific phenomena using authentic sources and use scientific evidence from the sources and investigations to support scientific claims and ideas. Vocabulary is used throughout the materials as students complete their investigations and participate in class discussions for deeper learning.
II: Additional Indicators of Quality	5. Learning Progressions	**Yes**	The overall organization of the materials support student mastery of the standards and the progression of learning is coordinated over time, clear and organized to prevent student misunderstanding. Students also apply mathematical thinking when applicable, and in some cases, mathematical standard correlations are explicitly stated in the materials.
	6. Scaffolding and Support	**Yes**	There are separate teacher support materials, including support in three-dimensional learning, scientific background knowledge, suggestions for diverse learners, and understanding learning progressions.
	7. Usability	**Yes**	Text sets, laboratory materials, and other scientific materials are readily accessible through vendor packaging. The materials

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			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, and the total amount of content is viable for the school year.
	8. Assessment	**Yes**	Assessment items and tasks are structured on the integration of the three-dimensions. Scoring guidelines and rubrics reflect performance expectations and give detailed specific criteria used in the grading of each item.

FINAL DECISION FOR THIS MATERIAL: **<u>Tier I, Exemplifies quality</u>**

DEPARTMENT of EDUCATION
Louisiana Believes

Instructional Materials Evaluation Tool for Alignment in Science Grades K – 12 (IMET)

FULL CURRICULUM
Instructional Materials

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: **PhD Science** Grade/Course: **5**

Publisher: **Great Minds, LLC** Copyright: **2019**

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

Tier I, Tier II, Tier III Elements of this review:

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
3. Alignment & 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**[5] 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.

[5] **Required Indicators of Superior Quality** are labeled "**Required**" and shaded yellow. 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 teach the science and engineering practices (SEP), crosscutting concepts (CCC) and disciplinary core ideas (DCI) separately when necessary but they are most often integrated 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 materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. Within Module 1, Matter, students have multiple opportunities to engage with the three dimensions throughout a variety of lessons and activities. In Lesson 3, students begin exploring the properties of materials (DCI, UE.PS1A.c) and have opportunities to measure the weight of objects (SEP, Using Mathematics and Computational Thinking). In Lesson 13, students investigate what happens when substances are mixed together (DCI, UE.PS1B.a). Students record the weight of each item (SEP, Using Mathematics and Computational Thinking) prior to mixing and then after comparing the measurements (CCC, Cause and Effect). By analyzing the mixtures to determine if the items can be separated, students engage in Planning an Investigation (SEP) to separate the mixtures using heat to add energy to the mixture (CCC, Energy and Matter). In Lesson 16, students investigate how the amount of mass in matter is conserved when it changes form. Students engage in Planning and Carrying out Investigations (SEP) and Using Mathematics and Computational Thinking (SEP) as they plan and implement an investigation to trap and measure the gas produced when mixing baking soda and vinegar. Students build to the understanding that Energy and Matter (CCC) can be tracked in terms of mass of the substances before and after a process occurs, and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			that the amount of matter is conserved when it changes form (DCI, UE.PS1A.b). In Module 3, Lesson 4, students investigate the amount of water on Earth in comparison to land and then the distribution of saltwater and freshwater on earth. During the Launch, students use fractional amounts (SEP, Using Mathematics and Computational Thinking) to represent the amount of water on Earth compared to the amount of land. Students use fractional data from a provided chart and use a 10 x 10 grid (CCC, Scale Proportion, and Quantity) to demonstrate how much water is saltwater (97 squares) and how much water is freshwater (3 squares), and then a second graph to demonstrate the various reservoirs where freshwater can be found on earth (DCI, UE.ESS2C.b). In Lesson 14, students learn about the Dust Bowl. Students analyze precipitation data (SEP, Analyze and Interpret Data) of various U.S. cities before and after the Dust Bowl and develop the understanding that human activities have had major effects on the land (DCI, UE.ESS3C.a). This understanding reinforces the idea that systems (CCC, Systems and System Models) can be described in terms of their components and interactions.
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 learning a majority of the time.	**Yes**	Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time. Phenomena, in the form of common experiences at the beginning of each unit, spark students to generate questions and define problems to motivate learning about the core ideas of the unit. This provides purpose for students to engage in investigations and lessons that follow as they engage in constructing explanations and designing solutions in relation to the phenomena. In Module 1, Matter, students investigate why the appearance of the Statue of Liberty has changed from the time that it was built in 1886, which serves as the anchor phenomenon. Throughout the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			module, students develop an understanding of matter and how it changes to construct an explanation as to why the Statue of Liberty changes over time. For example, in Module 1, Lessons 5-7, students investigate how air particles move in an open and closed system. Students then investigate how this links back to the anchor phenomena in Lesson 8. Students add to anchor models by depicting how gas particles could affect the Statue of Liberty. In Lesson 9 and 10, students investigate how temperature affects different substances and then apply this idea to the Statue of Liberty as they investigate the effects of temperature change on the same materials used in the statue in Lessons 11 and 12. In Lesson 13 and 14, students mix substances and use the properties to determine if a new substance if formed. In Lesson 17, students apply knowledge from a copper investigation to explain how the interactions of substances in and around the Statue of Liberty formed verdigris, causing the green color. Students update their anchor models and then explore ways to prevent rust formation in Lessons 18-22. Finally, in Lessons 23-26, students engage in a Socratic Seminar explaining what happened to the Statue of Liberty, connecting back to the anchor phenomenon. The modules' investigative phenomena are related to the anchor phenomenon and aid students in explaining how and why the anchor occurs in the real word. For example, in Module 2: Ecosystems, students explore an anchor phenomenon, "How can trees support so much life?" The lessons throughout the module are centered around several investigative phenomena and structured to help students explain how mangrove trees in Eritrea can support so much life. Students make observations and generate questions about how plants grow, where life's matter comes from, and where life's energy comes from. After students complete the investigations, they use the information they learned to explain the roles different organisms play

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			in the mangrove tree ecosystem, connecting back to the anchor phenomenon. Similarly in Module 4, Orbit and Rotation, the anchor phenomenon, “Views from Earth and Space,” and the essential question, “How can we explain our observations of the Sun, Moon and stars from Earth?” drive instruction and provide opportunities for students to design solutions. Students engage in lessons to identify patterns that can be observed in the sky such as the sun’s appearance of movement across the sky (Lessons 5-6), changes in the appearance of the moon (Lesson 13), and the recurring patterns in stars (Lesson 18-19). Finally, students use the observations gathered as evidence to support a claim answering the essential question (Lessons 24-26).
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **3. ALIGNMENT & 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**	All of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards and integrate the DCIs, SEPs, and CCCs of the standards (i.e., 13 out of 13). Module 1, Matter, addresses LSSS 5-PS1-1, 5-PS1-2, 5-PS1-3, 5-PS1-4 through the anchor phenomenon, “What caused the Statue of Liberty to change over time?” In this unit, standard 5-PS1-4 is fully addressed in Lessons 13-16 as students engage in Carrying Out Investigations (SEP) by mixing two or more substances to determine if a new substance with different properties has been formed (DCI, UE.PS1B.a). Students routinely identify cause (mixing two substances) and effect (a new mixture is formed) to explain changes they are observing (CCC, Cause and Effect). In Module 2, Lessons 3-5, LSSS 5-LS1-1 is addressed. The performance expectation guides teachers to “ask questions about how air and water affect the growth of plants.” Students first look at a picture of a sequoia tree and its cones, and then ask questions (SEP) about how sequoia seeds grow into such a massive tree. In Lessons 4 and 5, students conduct

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			an investigation to determine where plants get the matter they need for growth (CCC, Energy and Matter). Students measure the plant's growth throughout the investigation. At the end of the investigation, students discover that the plant with just air and water grows just as the plant with air, water, and soil. Using Patterns (CCC) of evidence, the conclusion is made that plants need air and water for growth (DCI, UE.LS1C.b).
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	The content was 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.
	3c) 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.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **4. DISCIPLINARY LITERACY:** Materials have students engage with authentic sources and incorporate speaking, reading, and writing to develop scientific literacy. ☒ Yes ☐ No	**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 increase in higher grade levels and courses.	**Yes**	Students regularly engage with authentic sources that represent the language and style used and produced by scientists. The instructional materials incorporate a variety of authentic sources including authentic data sets, photographs, examples of models, topographical maps, and diagrams. Authentic photographs are utilized in every module as a source of student inquiry. For example, in Module 1, Lesson 1, students look at photographs of the present-day Statue of Liberty, as well as images of the statue created at the time it was erected to investigate the phenomenon, "What caused the statue of liberty to change over time?" In addition, in Module 4, Lesson 18, students examine a photograph of the nighttime sky. The photograph is taken at an angle that is upward towards the sky. The skyline of trees is visible, as well as stars of varying brightness. Students observe the photograph and discuss what they notice about the stars. Students compare sizes of the stars to the size of earth. Throughout this lesson, the teacher continuously brings back a photograph of the nighttime sky to introduce how stars appear to differ in brightness. Later, in Lesson 19, students engage with an authentic photograph taken by the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Hubble Telescope to help craft an argument relating a star's appearance to its distance from Earth. Graphs and data sets are also utilized in the modules. In Module 2, Lesson 8, students analyze graphs of historical precipitation and the average weight of adult grizzly bears from Yellowstone National Park. Students use this data to make a claim about how animals use matter from the environment. In Module 3, Lesson 2, students analyze data about global rice consumption and production. Students use a bar graph that displays rice consumption per person in the world versus rice consumption in the United States. Students analyze this data and formulate more questions based on the graph provided. Students then look at a table of total rice consumption in kilograms for various countries in 2018. They work in partners to analyze the table, and then compare it to another table that shows how many rice patties were produced in 2018. In Module 3, Lesson 8, students use data from a map showing the number of days of rain in major U.S. cities as evidence to explain how water moves through Earth's atmosphere.
	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. Throughout the modules, students are regularly speaking, drawing models, and writing about science which supports the standards being taught to the full depth. In Module 1, Lesson 1, students look at photographs of the Statue of Liberty as their anchor phenomena. Students look at each photo, they write what they notice and what they wonder about each photo in their Science Logbook. Students then share their ideas as a class. Students have the opportunity to both speak and write about science.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Module 2, Lesson 15, students begin the lesson with a class discussion on how they use the matter they get from food and begin to develop ideas for why an adult needs food if they are no longer growing. Students are given data from an experiment with mice and write in their logbooks any patterns they identify. Students explain the differences using evidence from the experiment and draw conclusions about the relationship between food and energy in a class discussion to better understand the anchor phenomenon, "How can trees support so much life?" In Module 4, Lessons 11 and 12, students have the opportunity to speak and write about science. In Lesson 11, students are given time to create a presentation to explain their space-view sundial model from the previous lesson. Students are asked to explain not only how the sun appears to move across the sky in their selected city, but also how they used the observations to determine a pattern of apparent motion. Students choose the best way to present their explanations (e.g., a speech, a video, a visual presentation, or a website). Students begin the presentations in Lesson 11 and finish in Lesson 12.
	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**	There is variability in the tasks that students are required to execute. Students are regularly engaged in a variety of tasks such as, examining photographs, completing hands on activities, class discussions, partner discussions, writing, and reading. In Module 2, Lesson 4, students complete an investigation plan to determine where plants get the matter they need for growth. In Lesson 8, students begin the lesson by examining photographs of a bear at two different times of year. The bear is different sizes in each photo. Students discuss changes they see in the bear and think about the questions they have about the changes. Students make a claim about where they think bears get their matter. This leads them back to the phenomenon

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			question, “Where do animals get the matter they need for growth?” Students then look at a photo of bears at Yellowstone National Park when the park first opened. The photo is of an area where people would dump their garbage so visitors had a place to see the bears. Students learn that the park later closed this area. Students conclude that the bears main source of food during this time was probably the food in the dump. Students then look at data that represents rain before and after they had the food dumps for bears. They also look at the average weight of bears in the area before and after the food dumps. Students revisit their claim from earlier and give reasoning behind their claim. Students examine photographs, make a claim, examine data, and reexam their claim and add reasoning. In Module 3, Lesson 5, students observe a lake model and record the changes in water from vapor to liquid, and then back again as water cycles. In Lesson 10, students make models of mountains collecting water in different spots to investigate what happens to water after it falls as precipitation. In Lesson 19, students design and test an irrigation system to aid in conserving fresh water. In Module 4, Lesson 1, students make observations of the sky during different times of day in order to develop an anchor model to explain observations of the Sun, Moon, and stars from Earth. In Lesson 10, students consider if sundials can help keep track of time in any location on earth and use evidence to support their thoughts. Students then discuss the apparent movement of the sun across the sky, what sundials might look like from space, and how to create a mode to demonstrate how Earth’s rotation causes the motion of sundial’s shadow. Students create a model of the earth with a small foam ball, and use a lantern to model the sun. Students place toothpicks in various locations to demonstrate how the sun affects shadows on different parts of the earth.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	4d) 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 in the materials but not taught in isolation of deeper scientific learning.	**Yes**	The 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. For example, in Module 1, Lesson 9, students investigate the properties of water as it boils and condenses. These terms are not used until students make observations and gather an understanding of what they mean. In Module 2, Lesson 20, students are introduced to the term "invasive species." Throughout the lesson, students look at the affects the ash borer has on the North American forest ecosystem. After students discover the negative effects this animal has on the ecosystem, the teacher then introduces the word invasive species to the students, and discusses what it means as it pertains to what they have just learned. Later in the module, in Lesson 11, students read an article about decomposers and the role they play in breaking down matter. After reading, students are asked to explain what a decomposer is and include examples. In Module 4, Lesson 3, the vocabulary word "orbit" is not introduced and defined until after students had developed their anchor model of how the Sun and Earth appear in space. It is introduced in relation to a photograph taken from the International Space Station, which orbits the Earth.
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	**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	**Yes**	The lessons within and across each unit are organized to support learning through a natural progression. Students engage with and build an 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.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
practices, crosscutting concepts, and disciplinary core ideas; the content complements the the [Louisiana Student Standards for Math](). ☒ Yes ☐ No	prevent student misunderstanding and supports student mastery of the performance expectations.		The module lessons are organized so disciplinary core ideas, science and engineering practices and crosscutting concepts build upon each other throughout the course of study. Throughout each module, the class creates a driving question board to relate concept questions and guide upcoming lessons. The driving question board helps to focus the progression of learning for the anchor phenomenon. The science and engineering practices, crosscutting concepts, and disciplinary core ideas are coherently sequenced across all of the lessons and continuously reinforced throughout the modules. Throughout Module 1, students progressively build knowledge about gases, liquids, and metals and apply this understanding to determine why the Statue of Liberty has changed over time (CCC, Scale, Proportion, and Quantity). In Lesson 2, students develop an anchor model (SEP, Develop and Use Models) to show how the Statue of Liberty has changed over time. In Lesson 3, students investigate various metals by making observations and taking measurements of those metals (DCI, UE.PS1A.c). In Lesson 4, students begin to investigate various liquids. In Lessons 5 and 6, students investigate the nature of air (DCI, UE.PS1A.a) and determine that air is made of tiny particles too small to be seen. Then in Lessons 7 and 8, they extend this idea to solids and liquids as well. Students update the model of the Statue of Liberty to include the particle nature of air, liquids, and solids. In Lessons 11 and 12, students investigate the effects that heating and cooling can have on substances. This knowledge is built upon in Lessons 15 and 16 as students investigate how two or more substances can be mixed to form new substances with different properties (UE.PS1B.a). In Lesson 17, students update the model of the Statue of Liberty to explain how the copper of the statue interacted with a gas in the air to form a new substance, verdigris (CCC, Cause and Effect).

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			Throughout Module 2, students progressively build knowledge towards the concept that matter flows into, out of, and within systems, emphasizing the interactions between organisms and the environment. In Lesson 1, students engage with the anchor phenomenon of how trees can support so much life by observing how a mangrove tree interacts within its ecosystem. In Lesson 2, students create an anchor model (SEP, Develop and Use Models) of the mangrove tree with other organisms in its ecosystem (DCI,UE.LS2B.s), to show the relationships between the organisms that live within that ecosystem (CCC, Systems and System Models). By the end of Lesson 7, and through several investigations, students gain an understanding that organisms interact (CCC, Systems and Models) with each other by exchanging gases between each other (CCC, Energy and Matter) and within the environment (DCI, UE.LS2B.a). Students add to this model throughout Module 2 in lesson 9, lesson 14, and lesson 19. By the end of Lesson 19, students Develop a Model (SEP) to demonstrate the flow of energy (CCC, Energy and Matter) through the mangrove tree ecosystem linking the sun as the original source of energy (DCI, UE.PS3D.b). The CCC of Patterns is presented in Module 4, Orbit and Rotation to allow students to build an understanding of patterns within the sun, moon, and stars. In Lesson 1, students observe the sun and identify patterns based on those observations. Students use data by recording the length of shadows to continue looking for patterns in the movement of the sun in Lesson 6. Students observe patterns of the moon and then use data to analyze those patterns in Lesson 14. In Lesson 20, students explain the apparent motion of stars by looking for patterns. Consideration of the Louisiana Science Learning Progressions is provided under the heading Building Knowledge Across Levels in the module preface. In this section, the materials provide an explanation of

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			how students' Level 2 learning of the Louisiana Student Standards for Science supports Level 5 learning. This provides teachers with an understanding of how learning is coordinated over time to support student mastery of the standards before and within Level 5.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's 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 mathematical thinking when applicable. Students are regularly called on to apply mathematical skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning. For example, Module 1, Lesson 15 addresses LSSM 5.NBT.B.7 as students add and subtract numbers with decimals as they investigate how matter is conserved when mixing substances. In Module 2, Lesson 4, students observe and measure the weight and height of plants to determine growth. In Lesson 20, the text suggest that students should use rounding to find the difference between the population of trees at a given time within a data table. This skill aligns to LSSM 4.NBT.A.3, use place value understanding to round multi-digit whole numbers to any place. In Module 3, Lesson 16, students find the mass of soil with a digital scale. Students must find the mass in grams and to the nearest tenth of a gram. Students record their data in a table. This aligns to LSSM 5.NBT.AA3, read, write, and compare decimals to thousandths. Occasionally, students are introduced to math skills that go beyond the Louisiana Student Standards for Mathematics (LSSM) for Grade 5. For example, Module 3 touches on three different sixth grade math standards: LSSM 6.NS.C.6 in Lesson 7, LSSM 6.SP.B.5.c in Lesson 9, and LSSM 6.RP.A.3.a in Lesson 20. Even though students are introduced to the sixth grade concepts such as averages and percentages, students are not asked to calculate these. In

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			addition, the introduction of negative numbers is in the context of how the atmosphere influences ecosystems through weather and climate (5-ESS2-1).
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, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials provided. Each module provides a Teacher Edition that includes a Module Overview with an Introduction, Module Map, Focus Standards, Three Dimensions at a Glance and In Detail, Key Terms, Advanced Materials Preparation, Safety Considerations, Building Knowledge across level, and Additional Reading for Teacher. Sample prompts and conversation guides for class discussions, and Teacher Notes are also provided throughout the modules. The Focus Standards section includes a Spotlight on the Three-Dimensional Learning section to help teachers develop a deeper understanding of the SEPs, CCCs, and DCIs that are addressed in the module. For example, in Module 2 the Spotlight on Three-Dimensional Learning section states, “students use the three dimensions as they draw on everything they have learned about matter and energy in organisms and ecosystems to develop solutions that may reduce the impact of an invasive species.” Each module has suggestions for additional reading for teacher background knowledge. For example, in Module 1, teachers are directed to the book, “Chemistry Basics: Stop Faking It!” to support their own background knowledge. Additionally, a brief overview on student’s background knowledge based on the K-4 science standards they have encountered is included in the Building Knowledge Across Levels section. The “Teacher Note” sections throughout the modules offer guidance to teachers on how to implement strategies to engage student thinking, as well as on how students should respond to certain questions or activities in lessons. In Module 1,

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			Lesson 3, a Teacher Note instructs teachers on what questions to ask if students do not notice the relative weights of the cubes they are observing. Likewise, the "Check for Understanding" in Lesson 6 instructs teachers to give students who have misconceptions about the nature of air additional time for comparing their model with the final class model of air. The materials include speaking and writing support for the teacher to uncover student thinking. The Implementation Guide includes question stems to support student discussion. For example, the guide includes Collaborative Conversation Prompts, such as "What do you mean by____?" "What difference does that make?" and "How did you come to that conclusion?" In addition, the modules include sample student work. For example, Module 4, Lesson 19 includes a sample student ray diagram and explanation for why stars that are closer to Earth appear to be brighter. At the end of each module's Teacher Edition, appendices provide teachers with support before and during instruction. Appendix A, Module Resources, includes a set of lesson-specific resources to aid instruction, such as full-size photographs, informational texts, investigation procedure sheets, materials preparation, and supplemental information. Appendix B, Module Storyline, includes a more detailed version of the Module Map in the Module Overview that summarizes the progression of concepts in the module. Appendix C, Module Glossary, includes level-appropriate definitions for new terms in the module and the lesson in which the definition appears. Appendix D, Domain-Specific Words, General Academic Words, and Spanish Cognates, includes a list of key terms in the module and their Spanish cognates to support English language development.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. The sidebar in lessons of all modules contain notes on differentiation strategies the teacher can incorporate to support all learners who may need additional support or more of a challenge. For example, in Module 1, Lesson 4, a differentiation note suggests challenging students working above grade level to "create a Venn Diagram showing which properties can be used to identify solids, liquids, or both." In Module 2, Lesson 1, a differentiation section provides an alternative instructional delivery option by suggesting teachers provide a transcript for "The Mangrove Tree" for students who have difficulty with auditory processing. In Module 2, Lesson 3, students list the characteristics of a fair test. A suggestion for English Language Development is provided, and states "sharing the Spanish cognate 'caracteristicas' may be helpful. Discuss the meaning of characteristics in different contexts, such as physical and internal characteristics of people." In Module 3, Lesson 12, a differentiation section provides an alternative teaching approach by instructing teachers to provide a claim for low-level writing students, who then provide the evidence and reasoning to support the claim. In Module 4, Lesson 1, students work in pairs to complete a Boxes and Bullets text-based routine to capture the main ideas and key details. A differentiation note suggests, "for students who would benefit from additional scaffolding as they identify the main idea and key details of the test, provide the following questions to guide their thinking: Who is the focus of this article? What did

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			they do? How did they accomplish what they set out to do?"
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.	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. The online teacher's manual may be downloaded as a PDF file or used online. The modules contain the information to teach the lesson including links to relevant videos and reading materials. The material laboratory kits can be purchased from an external source. In some cases, the additional reading materials would need to be accessed separately. For example: in Module 2, Ecosystems and Module 3, Earth's Systems; in Module 2, "The Mangrove Tree" by Cindy Trumbore and Susan L. Roth; and in Module 3, "Cycle of Rice, Cycle of Life" by Jan Reynolds.
	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**	The 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. Teachers are provided with opportunities to read about safety precautions and opportunities to incorporate safety procedures into the lessons. General safety guidelines provided as the start of each module include safety measures, such as reviewing safety guidelines with students before each activity, students wearing safety goggles during investigations involving equipment, and students never placing investigative materials in their mouths. In Module 1, Lesson 2, a Safety Note for the lesson is suggested, "to prevent injury or skin reaction, tell students to keep the cooper pieces inside the bag as they observe them." Safety Notes, such as this, are provided throughout the module.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Module 4, Lesson 6, the teacher is directed under a section titled "Safety Note" to discuss safety directions with students, such as not looking directly at the Sun. The Implementation Guide also provides a detailed description of safety in a science classroom including addressing how students should behave and what they should wear.
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. There are 4 modules within the grade level. Each module includes between 26-27 lessons which are approximately 45 minutes in length but may extend past one class period of science. Additionally, extension activities are provided within units to deepen understanding, as time permits. Module 1 includes lessons 26, Module 2 contains 26 lessons, Module 3 contains 27 lessons, and Module 4 contains 26 lessons. There is a total of 105 lessons which allows teachers flexibility with time and accounts for interrupted days that may occur during the school year. Extension opportunities are suggested, as time permits, to extend the learning. For example, in Module 3, Lesson 21, and extension note suggests having groups "retest their irrigation systems under additional constraints." In Lesson 25 of the same module, another suggestion is provided to extend or shorten time by having students "research or investigate these questions independently at work stations or as optional homework."
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.	**Required** **8a) Multiple types** of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Multiple types of formative and summative assessments are embedded into content materials and assess the learning targets. Both formative and summative assessments are provided for each module. Students are assessed throughout the lesson and at the end of each module. The End-of-Module Assessments provide a variety of types of questions with stimuli provided for students to read and analyze to answer the questions.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			Formative assessments are embedded throughout each module to ensure students build understanding. For example, in Module 1, Lesson 8, students are presented with the task, "Imagine it is almost time for lunch at school. Create a model to explain how you can detect hot food as you walk towards the cafeteria." This serves as a conceptual checkpoint to ensure that students understand how particles move through the air. In Module 2, Lesson 7, there is a Conceptual Checkpoint in which students analyze a data set about the pounds of apples produced by a tree over five years in order to demonstrate an understanding of how plants use matter. Teachers are given next steps to take if students struggle with this task. Students complete an end of module assessment which serves as a summative assessment at the end of each module. In Module 1, the End-of-Module Assessment, students read about a baker that is looking at five different substances in his bakery. A table is provided with information about each substance. Students use this table and the reading information to answer three questions. On the same assessment, students are given information about a glass bottle and a model of the bottle on a hot plate over time. Students use this information to answer three questions. There is a variety of types of questions provided on this assessment. At the end of Module 2, students complete the End-of-Module Assessment which encompasses all of the standards covered within the module. Students answer questions about growing plants on Mars and must use the knowledge gained from investigations and reading. In Module 3, Lesson 25, the End of Module Assessment Part I has students research reasons for Mexico City sinking and develop an explanation for this new phenomenon. Students are given a text and multiple video clips about Mexico City, they

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			then discuss these resources as a class before developing an individual model to explain the various factors causing Mexico City to sink.
	Required **8b)** Assessment items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on the integration of the three dimensions. The End-of-Module Assessments and the tasks ensure that students use the Science and Engineering Practices to fully integrate their understanding of the Disciplinary Core Ideas and the Crosscutting Concepts. In Module 1, End of Module Assessment Part 1, students are tasked with Developing a Model (SEP) of how wind could move a ball. This requires students to understand that natural objects have different Scales, Proportions, and Quantities (CCC) and therefore air is matter made of particles too small to see (DC,I UE.PS1A.a). In Module 3, End-of-Module Assessment, students use a graph that includes data about what happens to precipitation in Mexico with three results (evaporates, becomes groundwater, and flows over the land) in fractional amounts. Students engage in Analyzing and Interpreting Data (SEP) to make a claim about what this data reveals about the amount of freshwater available (CCC, Scale, Proportion, and Quantity) to Mexico City's residents (DCI, UE.ESS2Ca.) In Module 4, Lesson 12 Conceptual Checkpoint, students are given a map of the United States and asked to identify from which city the sun would be visible if it is just rising over Denver, Colorado. Students have identified Patterns (CCC) in previous lessons to serve as evidence about the motion and relationship of the Sun and Earth (DCI, UE.ESS1B.a.) Students must provide reasoning to support the selected answer (SEP, Engage in Argument from Evidence.)

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Module 4, End-of-Module Assessment, a student's model of a rocket launch in four different locations on Earth is observed. Arrows at each rocket launch indicate the student's ideas about gravitational force acting on the rockets at different points on the planet. Students must make a claim with reasoning justifying (SEP, Engage in Argument from Evidence) whether the student's idea of how gravity is acting on the rockets (CCC, Cause and Effect) in the model is correct or incorrect.
	8c) Scoring guidelines and rubrics **align** to performance expectations, and incorporate criteria that are specific, observable, and measurable.	**Yes**	Scoring guidelines provided at the end of each module help teachers score questions from the End-of-Module Assessment. Each rubric gives the teacher the standard assessed along with the SEP, DCI, and CCC. For example, in Module 2, End of Module Assessment rubric, students are asked to determine if corn can be grown in a dome on Mars with air, water, and soil from Earth. Students must utilize their knowledge of how matter moves in a system to argue that corn acquires their material for growth chiefly from air and water (DCI, UE.LS1C.b). The rubric criteria states that students must correctly describe all three requirements for plant growth (air, water, and sunlight) and provide sufficient evidence from classroom investigations in order to fully meet the performance expectation. In Module 3, End-of-Module Assessment, students observe, analyze, and interpret a graph that displays information about where precipitation goes, either evaporates, in ground water, or flows over the land. The rubric gives students full credit if they can identify the missing entry on the table and provide sufficient evidence for why the entry should be included in the table. This aligns to the performance expectation to describe and graph the amount and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth (LSSS 5-ESS2-2).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In Module 4, End-of-Module Assessment, students observe a model of a rocket launch on a planet in four different points on the plant. Arrows indicate the idea that a student has about the gravitational force acting on the rockets at different points on the planet. Students must justify if the idea of how gravity is acting on the rockets in the model is correct or incorrect. The rubric provided aligns to support an argument that the gravitational force exerted by the Earth is directed down (LSSS 5-PS2-1). The rubric also gives students full credit if they include ideas that gravity pulls objects towards Earth's center and describe the relationship between the rocket and the direction gravity pulls on the rocket.

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
I: Non-negotiable Criteria of Superior Quality[6]	1. Three-dimensional Learning	**Yes**	Students have multiple opportunities to consistently demonstrate the application of the three dimensions of the science standards. The majority of the materials integrate the Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas to support deeper learning.
	2. Phenomenon-Based Instruction	**Yes**	The majority of instructional time is centered around students observing and explaining phenomena and/or designing solutions. Students are asked to observe and explain phenomena and design solutions, which provides the purpose and opportunity for learning.
	3. Alignment & Accuracy	**Yes**	All (13 out of 13) of the Louisiana Student Standards for Science for Grade 5 are appropriately incorporated with minimal time spent on content that is outside of the grade level.

[6] Must score a "Yes" for all Non-negotiable Criteria to receive a Tier I or Tier II rating.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	4. Disciplinary Literacy	**Yes**	Students regularly engage in a variety of tasks which require students to speak and write about scientific phenomena and engineering solutions. Materials address the necessity of using scientific evidence to support ideas. Vocabulary is introduced only after students have had an opportunity to build conceptual understanding through investigative, analytical, hands-on learning.
II: Additional Criteria of Superior Quality[7]	5. Learning Progressions	**Yes**	The lessons within and across each unit are organized to support learning through a natural progression. Students engage with and build an 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. Students apply mathematical thinking when applicable.
	6. Scaffolding and Support	**Yes**	Lessons include support materials for strengthening Teacher Background Knowledge, 3-D Strategies detailing explicit techniques for highlighting the SEPs, DCIs, and CCCs, sample prompts and conversation guides for class discussions, Teacher Notes, and appropriate suggestions for differentiating instruction for diverse learners.
	7. Usability	**Yes**	The total amount of content is viable for the school year and safety guidelines are embedded in the curriculum. The modules contain the information needed to teach including links to relevant videos and reading materials. Laboratory kits and text sets can be purchased from an external source.
	8. Assessment	**Yes**	Assessment items and tasks are structured on the integration of the three dimensions. Scoring guidelines and rubrics are aligned to performance expectations and incorporate criteria that are specific, observable and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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

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 2019-2020 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: Ascension, Beauregard, Bossier, Caddo, Calcasieu, Caldwell, City of Monroe, Desoto, East Baton Rouge, Einstein Charter Schools, Iberia, Jefferson, Jefferson Davis, KIPP New Orleans, Lafayette, Lafourche, Lincoln, Livingston, LSU Lab School, Orleans, Orleans/Lusher Charter School, Ouachita, Plaquemines, Pointe Coupee, Rapides, Richland, RSD Choice Foundation, St. John the Baptist, St. Charles, St. James, St. Landry, St. Mary, St. Tammany, Tangipahoa, Vermillion, Vernon, West Baton Rouge, West Feliciana, and Zachary. This review represents the work of current classroom teachers with experience in grades K-8.

The 2021-2022 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: Acadia, Ascension, Baton Rouge Diocese, Beauregard, Bossier, Calcasieu, Central Community, City of Monroe, Desoto, East Baton Rouge, East Feliciana, Evangeline, Franklin, Iberia, Jefferson, Lafayette, Lafourche, Lincoln, Livingston, Louisiana Tech University, Louisiana Virtual Charter Academy, Orleans, Ouachita, Rapides, Regina Coeli Child Development Center, Richland, Special School District, St. Charles, St. John, St. Landry, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, University View Academy, Vermillion, West Baton Rouge, and West Feliciana. This review represents the work of current classroom teachers 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.