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: **OpenSciEd, Carolina Certified Version** Grade/Course: **6-8**

Publisher: **Carolina Biological Supply Co.** Copyright: **2022**

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

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

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
3. Alignment & 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 6 (Tier 1) Grade 7 (Tier 1) Grade 8 (Tier 1)

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STRONG	WEAK
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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 **engage students** in integrating the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) to support deeper learning.	**Yes**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. In the Light and Matter unit, students develop knowledge to explain how light interacts to form a one-way mirror by engaging in various science practices and examining the phenomenon through the lens of several cross-cutting concepts. For example, in Lesson 1, students investigate a mirror system and build the practice of Developing and Using Models (SEP) by using systems thinking (CCC, Systems and Systems Models) as they grapple with initial explanations of phenomenon that involve the role of light in the reflective nature of materials (DCI, MS.PS4B.a). Students develop a list of important components and use it to develop an initial model. They further develop the practice of modeling by investigating the phenomenon through a scale model to observe how light interacts with materials within the system (CCC, Systems and

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			Systems Models) to make them reflective or transparent (DCI, MS.PS4B.a). In Lessons 2-4, students develop and refine experimental questions as well as plan and conduct investigations to further explore the relationship between light reflection/transmission and the structure of different materials (SEP, Asking Questions and Defining Problems, Planning and Carrying Out Investigations; CCC, Structure and Function; DCI, MS.PS4B.a). In Lesson 5, students utilize revised models and science ideas developed through investigation about the way light travels to construct an explanation of what causes the one-way mirror phenomenon (SEP, Constructing Explanations and Designing Solutions; CCC, Cause and Effect; DCI, MS.PS4B.a, MS.PS4B.b). In the Contact Forces unit, the second lesson set engages students in creating and using mathematical models through a series of investigations to determine the relationship between mass, speed, and kinetic energy (SEP, Planning and Carrying out Investigations, Analyzing and Interpreting Data; CCC, Scale, Proportion, and Quantity; DCI, MS.PS3A.a). In Lesson 7, students plan and conduct an investigation (SEP, Planning and Carrying Out Investigations) on how doubling the speed or mass affects the damage done in a collision, analyze data (SEP, Analyzing and Interpreting Data), and make connections to scale factors

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			(CCC, Scale, Proportion, and Quantity) to motivate the need for a mathematical model. Students then utilize a simulation to see how a cart behaves at different masses, interpret results of investigations to make, and explain predictions about how changes in the mass and speed will impact kinetic energy (SEP, Analyzing and Interpreting Data; CCC, Scale, Proportion, and Quantity; DCI, MS.PS3A.a). In the Sound Waves Unit, Lesson Set 1, students investigate the movement of instruments when they make sounds and relate that back to graphical representations of aptitude and frequency. They use models (SEP, Developing and Using Models) to describe the repeating Pattern (CCC) of a simple wave (DCI, MS.PS4A.a) and discover that louder sounds are caused by waves that have a higher amplitude and deeper sounds have a larger wavelength.
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. 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 is the purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon. Each unit starts with a big question about the phenomenon that

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			becomes the focus of the unit. The Cells and Systems unit starts with a scenario of a boy who fully recovered after dropping a weight on his foot in gym class and being unable to walk for months. Over the course of the unit, students work toward figuring out how this student's foot healed and, more generally, to answer the big question, "How do living things heal?" In Lesson 1, students engage with medical reports, co-construct a definition of healing, and create a healing timeline and an initial model to explain what happened in his recovery before generating questions for the driving question board and ideas for how they might investigate their questions. The class arrives at the idea that exploring how muscles and bones work together in an uninjured foot will help them explain why they do not work in one that is injured. For the next few lessons, they investigate bones, muscles, and skin which motivates the need for deeper exploration of blood and nerves to eventually determine that all living things are made of cells. After putting this idea together, the class comes to realize that they need to look more deeply at what happens to cells during an injury and spend the next several lessons figuring out that our bodies need to make new cells to heal and that cells need certain things in order to reproduce. Each lesson has a guiding question that connects to student-generated questions

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			and navigation designed to maintain coherence in exploring the healing phenomenon. Throughout the unit, there are several ways that students track progress toward explaining the phenomenon, including revisiting and revising the model, individually adding notes to a Progress Tracker, and engaging in discussions designed to take stock of what the class can already explain and what they still need to investigate. In Lessons 12 and 13, students use what they have learned about what happens inside the body to explain how structures and systems work together to heal an injury and apply these ideas to explain growth in the body. The Sound Waves unit begins with the following phenomenon: a truck is playing loud music in a parking lot, and the windows of a building across the parking lot visibly shake in response to the music. Students generate questions about three aspects of sound phenomena: What makes sound? How does sound get from the truck to the window? And Why does the window shake as it does? At the beginning of Lesson 1, students watch a short video of the phenomenon while documenting observations in their Notice and Wonder Chart in their student notebooks and discuss their observations. Students then observe a speaker facing a bowl wrapped in plastic wrap to simulate a window. The volume is turned down then up and down again for students to

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			observe the movement of the plastic wrap against the bowl. Students document their observations and discuss their findings, answering the student generated questions. In the Forces at a Distance unit, students revisit the speaker model from the Sounds and Waves unit and take it further to investigate the cause of the speaker vibrations. Over the course of Lesson 1, students view a short video of a speaker in slow motion, brainstorm how to investigate the force inside the speaker that causes it to vibrate, observe the teacher dissecting a speaker to isolate its components, work to generate a model of how the parts work together to create sound, and create a homemade speaker using their models. As the unit moves forward, students investigate components of the system, energy transfer and forces within the system, as well as other ideas based on the questions they generate in Lesson 1 in order to incrementally explain the speaker phenomenon.
	Required **2b)** Materials are designed to provide sufficient opportunities for students to **design and engage in investigations at a level appropriate to their grade band** to explain phenomena. This includes testing theories or models, generating data, and using reasoning and scientific ideas to provide evidence to support claims.	**Yes**	Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. Material, when appropriate, allows for students to engage directly with experiments designed to discover the phenomena. The materials provide frequent opportunities for students to authentically engage with the Science and Engineering Practices by

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			designing and conducting investigations around student-generated questions and analyzing data needed to support a claim or develop an explanation related to a phenomenon. In the Earth and Space unit, Lesson 4, students examine data related to seasonal temperature and distance relative to the sun and conduct an investigation with a physical model which demonstrates the patterns between the angle of light and amount of energy. This investigation explains how changes in the angle of sunlight affects temperature on Earth. Later in the unit, in Lesson 11, students explore conditions under which white light becomes a rainbow by planning and conducting an investigation where they shine light through different shaped glass and explain what happens to each. In the Contact Forces unit, Lesson 2, students conduct a series of investigations to determine how things fall on inexpensive breakable objects to determine the relationship between mass, speed, and kinetic energy. Later, in Lesson 7, students plan and conduct an investigation on how doubling the speed or mass affects the damage done in a collision and analyze data to motivate the need for a mathematical model. Students then utilize a simulation to see how a cart behaves at different masses, interpret results of investigations to make and explain predictions about how changes in the mass and speed will impact kinetic energy.

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			In Earth in Space, Lesson 4 students use paper plates and pipe cleaners to create a three-dimensional model of the path of the sun in the sky during the seasons. They then use this model to investigate the amount of light energy applied to an area during each season of the year.
	2c) Materials provide frequent opportunities for students to **make meaningful connections** to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.	**Yes**	Materials provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena. Sensemaking supports the materials' framework and the flow of learning. Investigation and exploration provide students the ability to individually and collaboratively put different pieces together to make sense of phenomena. Many of the units utilize phenomena that may be familiar to students, and all units include the opportunity for students to generate related phenomena based on their own experiences and prior knowledge. The Cells and Systems unit begins with students sharing their experiences of being injured and not being able to do something they enjoy. They then explore a case study of a middle school student who suffered a foot injury which anchors their learning for the unit. Later in Lesson 1, students draw upon their experiences and previous knowledge to co-construct a class community definition of healing. The lesson concludes with students determining that the first

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			step in investigating this injury and healing phenomenon is to explore how parts work together as a whole. In Lesson 2, students analyze the dissection of a chicken wing. The students look at how all of the parts of the wing work together, discuss what would happen if there were an injury to occur, and watch a video on an injured wing. The investigation leads back to the phenomenon of the broken foot, and students begin to build understanding together as the body as a system of smaller subsystems. In Earth in Space, Lessons 1-3, students explore a phenomenon called “Manhattanhenge” where the sun perfectly lines up between two buildings during sunset on a particular day in a particular place. After generating ideas about what might be happening to cause this, students brainstorm other patterns in the sky that they have seen themselves or heard about, then engage in home learning where they ask their families or other community members about their experiences with patterns or phenomena in the sky. The theme of investigating patterns to explain the “Manhattanhenge” phenomenon continues throughout the unit. Students explore how things move in the solar system and how this keeps happening consistently over time. They identify patterns and analyze data to model large systems on earth and illuminate the reason for the “Manhattanhenge”

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			phenomenon. In Contact Forces, students build knowledge about forces and collisions by exploring the familiar scenario of a broken cell phone screen and eventually use what they have learned to design a way to protect cell phone screens from breaking. Students use this information to design headgear for cheerleaders in the transfer tasks. During the course of the unit, students also explore related phenomena such as car crashes and breaking everyday objects like paint stirrers, noodles, and crackers.
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**	The majority (14 out of 19) of the Grade 6 Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards. Standards that are not fully addressed in the materials include: LSSS 6-MS-LS2-1, 6-MS-LS2-2, 6-MS-LS2-3, 6-MS-PS1-1 and 6-MS-ESS3-4. While Disciplinary Cores Ideas (DCIs) from the standards listed are not integrated into the materials, identified Science and Engineering Practices (SEPs) and Crosscutting Concepts (CCCs) are often integrated and explored throughout multiple units. For LSSS 6-MS-LS2-1, DCIs MS.LS2A.a, MS.LS2A.b, & MS.LS2A.c are not addressed. For LSSS 6-MS-LS2-2, DCI MS.LS2A.d is not addressed. For LSSS 6-MS-LS2-3, DCIs MS.LS2B.a, MS.LS2B.b, MS.LS2B.c, & MS.LS2B.d are not addressed. For LSSS 6-MS-PS1-1, DCIs MS.PS1.A.a and MS.PS1A.e are not addressed. For LSSS 6-MS-ESS3-4, DCIs

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			MS.ESS3C.b, MS.ESS2.E.a, & MS.EVS1B.a are not addressed. However, Engaging in Argument from Evidence is supported in the Contact Forces, Sound Waves, and Cells and Systems units. Constructing Explanations and Designing Solutions is a supported practice in the Contract Forces, Forces at a Distance, Cells and Systems units and is deeply integrated in the Light and Matter unit. Developing and Using Models is a supported practice in all of the Grade 6 units and is deeply explored in the Light and Matter and Forces at a Distance unit. Energy and Matter concepts appear in the Contact Forces, Sound Waves, and Forces at a Distance units. Scale, Proportion, & Quantity is deeply explored in the Light and Matter, Earth in Space, Cells and Systems units and also supported in the Forces at a Distance unit.
	Required **3b)** The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. There are 80 total lessons with most being multi-day in the units slated for Grade 6. If taught as presented, all six units require 161 days to teach without the necessary unit on ecosystems required to address all the standards. Included within many lessons are extension readings, videos, simulations, or activities offered as alternates, home learning, or extended learning.
	Required **3c)** 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

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			science explanations could be found. Information in the units is up to date, with current video links and experiments that are relevant to current science principles. Each of these units have been revised within the last two years ensuring that all information has been updated. Incorrect or out of date science explanations are not evident in the materials. In the Earth in Space unit, students observe a modern day phenomenon in New York City, called "Manhattanhenge," which is the alignment of the sun between particular buildings twice a year. Students investigate this and other observable patterns in the sky from multiple perspectives at various scales in order to arrive at widely accepted scientific explanations for the movements within the Earth, moon, and Sun system. In Contact Forces, Lessons 11-16, students design a protective device to help keep cheerleaders safe. Within these lessons, students critically read a scientific text about how concussions result in memory loss and how helmets protect the brain. In addition to this reading, students explore the CDC website and review up-to-date information about concussions in athletes, supporting students in the design of their headpiece.
	3d) In any one grade or course, instructional materials spend **minimal time on content outside** of the course, grade, or grade-band.	**Yes**	Instructional materials spend minimal time on content outside of the course, grade, or grade-band. Instructional materials spend the majority of time

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			within the grade band but do expose students to minimal materials above grade bands to maintain coherence in relation to the phenomenon. For example, students engage with content from the Grade 7 (LSSS 7-MS-LS1-3) in the Cells and Systems unit in order to explore the relationship between body systems and healing in the body. Additionally, MS-LS1-8 is not included in the Grade 6 LSSSS and is addressed in the Light and Matter unit. In the Sound Waves unit, Lesson 5, students are exposed to graphs of high and low pitch sounds as well as loud and soft sounds. These graphs, depending on when the unit is taught in the school year, could be taught to students in this unit before position graphs are taught in math classes.
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 primary source documents, photographs, and authentic data sets. In the Light and Matter unit, Lesson 8, students develop experimental questions and identify the independent and dependent variables while planning an investigation. In the Cells unit, Lesson 10, after analyzing data from an investigation and determining the need for more information, students review strategies for obtaining information from scientific texts then read one of four sourced, age-appropriate texts

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			about single-celled organisms. In the Earth in Space unit, Lesson 3, students make predictions then view a video made with planetarium software to observe the simulated motion of the Sun through the sky during a period of a day at various times of the year. Students create a model to identify patterns found as the Sun moves across the sky in the spring, summer, fall, and winter. They look for patterns in the angle of the Earth's axis in relation to the time of year and the length of sunlight upon the Earth. Students revise their models to reflect the information they gain from the video and the model they create. In Sound Waves, Lesson 10, students use a simulation to visualize sound moving across a medium which is embedded in the online system that the students complete their work in. The activity allows students to use computer programs and models to see how sound vibrates molecules to move from its point of origin.
	Required **4b)** Students regularly engage in **speaking and writing** about scientific phenomena and engineering solutions using authentic science sources; e.g., authentic data, models, lab investigations, or journal excerpts. Materials address the necessity of using **scientific evidence** to support scientific ideas.	**Yes**	Students regularly engage in speaking and writing about scientific phenomena and engineering solutions using authentic sources. Materials address the necessity of using scientific evidence to support ideas. Students regularly engage in productive science talk to generate driving questions, build understanding, and come to consensus. They also present and revise designs, gather evidence from multiple sources, and explain findings. In all units,

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			students regularly engage in Driving Question Boards in which they provide questions about real-world phenomena that help guide their learning experience. They also present and revise designs, gather evidence from multiple sources, and explain findings. Students turn and talk with peers regularly and such activities are clearly marked in the materials. Students also engage in Building Understanding Discussions and Science Circles where students learn how to respectfully argue from evidence information that they have learned. For example, in the Contact Forces unit, Lesson 6, the assessment includes an opportunity for students to demonstrate their ability to write an argument that uses “ideas related to kinetic energy, peak forces, and breaking point for these structures in the brain and axons.” Later in the unit, students develop and revise criteria and constraints as well as design and revise a protective device based on materials testing. In the Light and Matter unit, Lesson 2, students are prompted to answer questions about the path of light in each scenario presented, noting what the person would see and to think about and why they would see that particular image. They engage in a class discussion to build consensus about the role light plays within the phenomenon and how to represent that light in a model. This prompts students to think about the way

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			light travels and how it reacts to materials very early in the unit. In Lesson 10 of the Cells and Systems Unit, students analyze data from their investigation and engage in a jigsaw reading. Students then independently develop an argument based on evidence about what cells need to heal a wound. For example, Lesson 10, Student Lesson Resources, Student Assessment, students answer the following question: "What do Bacteria Need to Make More of Themselves?"
	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. Within each unit, students produce and revise models of the anchoring phenomenon. Across the materials, students regularly engage in a variety of tasks, such as constructing written explanations, planning and conducting investigations, making observations and collecting data with simulations, reading scientific texts, and designing using criteria and constraints. For example, in the Contact Forces unit, students engage in a variety of tasks such as recording observations, developing questions, modeling and investigating using different objects, and analyzing videos. This variety of tasks helps to keep students engaged and culminates in Lessons 11-16 as students design an object that will help in a collision and revise the design in the engineering process. The design challenge supports students in fulfilling the standards

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			requirements and engages them in critical thinking which they do by critically looking at engineers' solutions to cheerleader concussions, and designing their own. In the Cells and Systems unit, Lesson 1, students create and revise a timeline for healing in which they explain why each event occurs. In addition, students continue to revisit and revise models in Lessons 8 and 11. In the final activity, Lesson 14, read stories about people with different needs and brainstorm ways to make the world more accessible. In Lesson 13 of the Earth and Space unit, students gather information from a text to identify connections and observations others have made about Venus. They also identify and document additional patterns in other observations of Venus, adding any additional new questions to investigate. Students show the relative position of motion of Venus and Earth in the system to explain the additional patterns using a model and then analyze the scale properties of other planets to Venus to identify even more patterns.
	Required **4d)** Materials provide a coherent sequence of learning experiences that **build scientific vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	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. Throughout the materials, students build a word wall

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			with words they earn or encounter or words that are reinforced. Students co-create the definitions as they are discovered in the lessons. The materials include a Guidance for Developing your Word Wall in each teacher's section to support students in this process. Guidance suggests that each class period creates their own, but accurate, definitions on a separate wall, if possible, or at least in individual notebooks. Vocabulary lists are not given at the beginning of a lesson. Some terms appear throughout the materials and are reinforced in each unit or lesson. For example, in the Sound Waves unit, Lesson 4, students record observations of sound graphs. After they have discussed and analyzed these graphs, students add their shared definition of amplitude to the word wall. In the Light and Matter unit, Lesson 3, students earn the words reflect and transmit. Students have already encountered these concepts in Lessons 1 and 2 when observing the anchoring of the musician seeing himself in the one way mirror, and the observer seeing the musician through the mirror. Until they know the scientific words to explain how the light is moving in these situations, they can use their own words to explain the concept. In the Forces at a Distance unit, Lesson 2, students are reminded of the distinction between attractive and repulsive in regards to forces. The words are written

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			where all can see with a diagram illustrating arrows pulling together and pushing apart. These terms can be added to a word wall or students add them to their glossary they have set up in their notebooks.
Section II: Additional Criteria of Superior Quality			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the Louisiana Student Standards for Math. ☒ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear, and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The 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. Teacher guidance includes a Unit Overview and Storyline that outlines how asking questions and investigations drive student learning as they develop science concepts and figure out the answer to their questions throughout the unit. The Unit Overview also includes what the students will figure out, how they will represent what they learned, and how they will engage with all three dimensions in each lesson. The materials also include a section of background knowledge that provides additional guidance for adjusting the sequence of the units if taught out of order. These resources support student mastery of the Performance Expectations and maintain coherence. For example, in the Forces at a Distance unit, students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			view short videos, read articles, use computer simulations to develop questions for an investigation, revise models according to data collected from investigations, and construct a scientific explanation for the unit phenomenon. The unit anchoring phenomenon is the vibration of a speaker, and student investigations aim to determine what causes the vibration. This builds upon concepts and skills developed in the Sound Waves unit and builds student understanding of how sound waves are reflected, absorbed, or transmitted through different materials and how light travels and is reflected or absorbed by different materials. The Forces at a Distance Unit, Lesson 1, begins with a video of a truck playing loud music, causing windows of a building across the parking lot from the truck to visibly shake. Students develop initial models, investigate speakers and musical instruments, use motion sensors to collect data on vibrations and produce graphs to illustrate and identify patterns to construct an explanation for how frequency/amplitude of sound waves determine sounds people can hear. They also investigate the role of magnets in the internal structure of a speaker by exploring pushes, pulls, and coils in Lesson 2. In the Cells and Systems unit, students develop an explanation for how things heal by investigating a student's injured

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			foot that healed over a few months as the anchoring phenomena. Students analyze chicken wings in Lesson 2 to develop an understanding of the body as a system and analyze images of parts of the body's system such as bones, blood vessels, nerves, and tissue to further explore how these systems work together to heal an injury. They later expand on these ideas to think about growth and shift to thinking about people with disabilities. In the Light and Matter unit, students begin by developing an understanding of the way light travels in the air, then how light travels through and reflects off of surfaces. Through revisiting and revising models, students later identify how the path of light enters the human eye and interacts with the parts of the eye system. The ongoing investigation of the unit phenomenon provides the evidence for students to construct an explanation for how one way and two way mirrors work.
	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 Grade 6 Louisiana Student Standards for Mathematics (LSSM). Students regularly apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning. In the Light and Matter unit, Lesson 3, students measure the amount of

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			light that several different materials reflect or transmit. Students then use this data to rank those materials on a number scale from least to most amount of light transmitted (LSSM 6.SP.A.2 and 5.NBT.A.1). In the Contact Forces, Lesson 7, students create a table and a graphical representation of the data they collect during their investigation (LSSM 6.RP.A.3). At times, students may be asked to apply mathematical thinking beyond the scope of grade 6. In these instances, the teacher materials provide guidance on how to support students. For example, in the Sound Waves unit, Lesson 4- 6 and 13, students compare functions expressed graphically (LSSM 8.F.A.2) and describe the relationship between two quantities (LSSM 8.F.B.5). These concepts would naturally come up when investigating amplitude and frequency for LSSS 6-MS-PS4-1.
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). Support also includes teacher guidance in the materials' **approach to phenomenon based instruction** and provides explicit guidance on how the materials address, build, and **integrate the three dimensions**.	**Yes**	There are separate teacher support materials provided. Support materials include extensive teacher guidance with a Unit Overview and Storyline. The teacher resources are located online within each unit and provide all of the unit specific resources needed to teach the units and lessons. Once accessing the materials online, each unit is shown independently. A series of tabs provides the Unit Storyline and how the students will engage with the unit phenomenon. The Unit Overview tab includes the standards and NGSS

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			performance standards information for the unit. The Teacher Background Knowledge provides guidance for the SEP, CCC, and DCI applications within the unit. The materials include a 3-D Strategies section that detail techniques to further support the development of SEPs, DCIs, and CCCs. The Assessment System Overview tab provides the type and timing of assessments (formative and summative) throughout the unit to determine student understanding of the standards. The Investigation Materials tab lists the materials required for each lesson within the unit. It also identifies which materials are included with the materials kits and which must be obtained by the teacher. The Unit Resources tab shows unit resources for both teacher and student which can be printed out and/or assigned online through Google Classroom. Each lesson includes a detailed learning plan as well as a section that clarifies where the lesson is going and where it is not going, guiding how in-depth students should engage within the content. Additional resources include editable slide presentations to guide the lesson step-by-step, the Learning Plan Snapshot that details how much time each section of the lesson should take, a Lesson Overview that details how many days the lessons should take, and Learning Objectives that describe what the students should be expected to master.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			The Unit Overview section of the teacher dashboard provides teachers with all necessary information needed to facilitate and implement the materials.
	Required **6b)** Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is **developmentally appropriate**.	**Yes**	Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is developmentally appropriate. Within each lesson, Support materials include: a Teacher Background section (scientific background about the Disciplinary Core Ideas of the unit), 3D Strategies sections that detail explicit techniques for highlighting and SEPs, DCIs, and CCCs, and sample prompts and conversation guides for class discussions with a Where We Are Going and NOT Going section. The dashboard also includes teacher reference sections with additional information and pictures of how investigations should look. Each unit has a section that outlines how each SEP and CCC develops throughout the unit. The units also have posters and handouts for communicating in science, classroom norms, and discussion skills to support students with sensemaking about phenomena and demonstrating scientific knowledge and skills. For example, in the Light and Matter's unit, the teacher dashboard explains to teachers where to go and where not to go when guiding students in the investigations. The

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			materials include Supplemental activities, such as in Lesson 2 where students build prerequisite understanding as Grade 4 standards are reinforced. Guidance suggests if and when teachers should use the supplemental activities. In the Contact Forces unit, Lesson 7, Additional Guidance is provided for teachers to listen for key ideas to help students see that relative increase in the distance the box in the investigation is pushed is a measure of the relative increase in the kinetic energy of the object. Additional guidance helps the teacher know specifically what students should be learning from this section of the lesson.
	Required **6c)** Support for **English Learners and diverse learners** is provided. Appropriate suggestions and materials are provided for **supporting varying student needs** at the unit and lesson level. The language in which questions and problems are posed is not an obstacle to understanding the content, and if it is, additional supports are included (e.g., alternative teacher approaches, pacing and instructional delivery options, strategies or suggestions for supporting access to text and/or content, suggestions for modifications, suggestions for vocabulary acquisition , etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. Each Unit Overview includes a pacing guide in which teachers can utilize to plan opportunities for students who need additional experiences and time developing core ideas of the unit. Each unit contains teacher guides which include support and guidance assistance in sidebar callout boxes noted as Attending to Equity and subheadings such as Supporting Emerging Multilingual Learners and Supporting Universal Design for Learning. Other callout boxes that include strategies include: Additional Guidance, Alternate Activity, and Key Ideas, among other various discussion callouts. Each unit includes the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			development of a Word Wall as part of students' routines for earning or encountering scientific language. Each Unit Overview also includes a Phenomenon Relevance Note with suggestions for modifying the anchoring phenomenon to increase accessibility or local and cultural relevance for students, as needed. The Teacher Handbook provides materials' design to promote equitable access to high-quality science learning experiences for all students by focusing on relevance, collaborative sensemaking, and involving all students in the learning process. The materials utilize a universal design for learning principles to meet the needs of all learners and emphasize classroom culture and norms. The materials also provide a Spanish Student Edition and teacher guides for each unit. For example, in the Contact and Forces Unit, Lesson 9, Attending to Equity - Emerging Multilingual Learners guidance states, "It may be helpful to intentionally pair emerging multilingual students with peers whose English language development is similar to theirs to explain their home learning results. Encourage students to express their ideas using linguistic and nonlinguistic modes such as drawings, symbols, and gestures. If possible provide hands-on materials (e.g., shoe, rubber band, carpet square, index cards) for students to demonstrate their ideas." In the Contact Forces unit, Lesson

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			9 includes sentence frames from Lesson 2 to help struggling students.
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 information needed for activities are readily available. Text sets are identified, lab materials are listed, and procedure setups are clearly provided. Once accessing the Unit Resources tab for each unit, PDF copies of handouts and printables needed for each lesson are available and include the option of loading each to Google Classroom for each unit. The vendor provides kits for each unit. These include activity materials such as flashlights, batteries, duct tape, index cards, and a light meter. Consumables are listed for each lesson that the teacher and/or school provides, referred to as Locally Sourced, and include such common items as safety glasses, markers, copy paper and pencils. Each unit includes a list of materials needed for each lesson and number of students per group that are vendor provided and locally provided. Links are available for purchase with the vendor as needed. For example, in the Light and Matter unit, Lesson 1, the teacher dashboard includes a materials list and preparation section for the activity under Investigation materials. Then the teacher manual shows how each activity is set up through pictures.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	Required **7b)** Materials help students build an understanding of standard operating procedures in a science laboratory and include **safety** guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the curriculum.	**Yes**	Materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment. Science Lab Safety guidance and guidelines are provided for teachers and for the students and their parents. Students are exposed to a variety of different types of investigations and experiments requiring various safety equipment and procedures. Each time a learning opportunity of this type is presented, a Safety Precaution box appears in the teacher manual and is designated with a yellow triangle containing an exclamation mark. The information contained in the box is specific for that investigation. It is expected for schools to provide the safety equipment for their science classrooms such as goggles, gloves, and aprons. The Teacher Background tab provides a link to print a lab safety hard copy for students and parents to sign. The PDF and access to post the PDF on Google Classroom is located under the Unit Resources tab. The Unit Overview Materials provides a section of lab safety recommendations for any lesson with an investigation in the unit. These recommendations include wearing safety goggles, wiping up spilled water, proper disposal of waste materials, and other standard Lab safety precautions. In the teacher notes for the lesson, guidance makes the teacher aware

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			of safety precautions, such as in Lesson 3 of the Sound waves unit which cautions use of lasers as it is prohibited in some states. In the Contact Forces unit, Lesson 1, a Safety Precautions box instructs the teacher to review safety guidelines. The box also instructs the teacher to have students wear safety goggles while demonstrating collisions and while standing or sitting near the collisions. The box explains that setting up strong boundaries and expectations with this first demonstration is key to future demonstrations staying safe.
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 content materials and assess the learning targets. Assessments are embedded in the lessons and allow students to demonstrate understanding and knowledge developed through the unit. Formative assessments are embedded in the lessons such as questions, discussion prompts, written explanations, and models. Each unit includes an Assessment System Overview that outlines both formative and summative assessment opportunities, student self-assessments, and lesson-by-lesson assessment opportunities with the three dimensions highlighted. The materials also include task assessments in the forms of design challenges and presentations. Most lessons included a Progress Tracker for student self-

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			assessment which can be used to formatively assess individual student progress or for students to assess their own understanding throughout the unit. The Unit Resources tab of each unit provides PDF copies of assessments to use with the units. For example, in the Contact Forces unit, the summative assessment includes an investor pitch developed by students at the end of the unit to present their Cheerleading Headgear. This headgear is a device conceptually developed by student groups using knowledge obtained during the course of the unit and should demonstrate their understanding of all unit standards as well as rational for trade-offs to optimize specifics of their chosen designs. In the Cells and Systems unit, embedded assessments are in Lessons 7, 10, 12, and 13. In Lesson 7, students make claims about cells based on evidence. In Lesson 10, students expand on current knowledge to include ideas with bacteria. In Lesson 11, the students show how the systems interact. All of the knowledge developed culminates in Lesson 12 where students explain how things grow for the unit's final assessment. In the Sound Waves unit, the assessments are in Lessons 6, 13, and 14. In Lesson 6, students analyze data and make scientific claims based on evidence. In Lesson 13, students build on this practice and explain a sonic fire extinguisher. Lesson 14 includes the Unit

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			assessment where students explain how musicians experience hearing loss more often.
	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 the integration of the three dimensions and include opportunities to engage students in applying understanding to new contexts. Throughout all the lessons of the units, students revise models to reflect new understanding that comes from the data collected from previous investigations and acquisition of new knowledge from readings, videos, computer simulations and student seminars. Each lesson includes at least one lesson level performance expectation (LLPE) which are three-dimensionally structured to include the SEP, DCI, and CCC. The Teacher Guide for each lesson within the Lesson-by-Lesson Assessment Opportunities section lists the LLPEs for each lesson. The SEP, DCI, and CCC that correspond are color-coded to readily identify their alignment to the assessments used with each lesson. The Unit Assessments of each unit integrate Science and Engineering Practices as students use data, writing, explanations, and models to explain the anchor phenomena. For example, in Contact Forces, Part 1 of Cheerleader Headgear Designs, students Analyze and Interpret Data (SEP) to model (SEP, Developing and Using Models) and explain the structural

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			properties of their designs (CCC, Patterns), which fully evaluates students on the Performance Expectation MS-PS2-1. In the Earth in Space unit, Lesson 14 includes a formative assessment in which students investigate (SEP, Planning and Carrying Out Investigations) a two object system using a computer simulation. They answer a question they previously asked (SEP, Asking questions and Defining Problems) in a hand out with a model (SEP, Developing and Using Models) of the moon and earth System (CCC, Systems) which assesses Performance Expectation MS-ESS1-3. In the Sound Waves unit, Lesson 6, students apply the knowledge they developed to explain and model (SEP, Developing and Using Models) different sounds coming from an instrument they have not yet studied. Students then make a claim and argument (SEP, Engaging in Argument from Evidence) for the different sounds being made. In the Light and Matter unit, the end of unit assessment integrates all the student knowledge gained to determine the best light conditions for the one-way mirror phenomenon to occur. Students then apply this information to other, similar materials and situations, and students use their models and science ideas to demonstrate this phenomenon and provide a claim and evidence to support their knowledge.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	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. All units include answer keys and rubrics for major assessments as well as criteria such as look fors/listen fors that call out all three dimensions of Performance Expectations. Graded and non-graded assessments are included as well as the models students build. Rubrics for teacher and peer feedback are also included. In the Cells and Systems unit, the development of Our Body as a System poster is explained and fully completed lesson by lesson on what the students add as a class. In the same unit, the timeline answers are provided with extensive responses in the teacher materials. In the Sound Waves unit, several rubrics allow the teacher to make sure that students understand what is needed for a sound to happen and to check the model that they developed. The Interactions Between Components shows what CCC is being developed or mastered. They also give students a similar checklist in Lesson 11 that lets them check if their models have been fully completed. In the Light and Matter unit, the end of unit assessment scoring guidance provides the teacher with both a written response and a drawn response that students could provide. For both responses, teachers are given a set of ideas marked with + signs. Those ideas with + signs are things

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			students need to master, and, if several are missing, guidance suggests that students either cannot bring their ideas together or they have not mastered the required concepts. Those ideas marked with ++ are ideas students display when developing a deeper understanding of the content and should not be marked off if they are not present.

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**	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 purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			phenomenon. Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. Materials provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.
	3. Alignment & Accuracy	**Yes**	The majority (14 out of 19) of the Grade 6 Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards. All reviewed content is accurate, up-to-date and aligned with the most current and widely accepted explanations. Instructional materials spend minimal time on content outside of the course, grade, or grade-band.
	4. Disciplinary Literacy	**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 primary source documents, photographs, and authentic data sets. 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. The materials provide a coherent sequence of authentic science

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			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.
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. Students apply mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills that go beyond the Grade 6 Louisiana Student Standards for Mathematics.
	6. Scaffolding and Support	**Yes**	Separate teacher support materials provided. Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is developmentally appropriate. Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets (when applicable), laboratory, and other scientific materials are readily accessible through vendor packaging.

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			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 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 1, Exemplifies quality**			

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

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: **OpenSciEd, Carolina Certified Version** Grade/Course: **7**

Publisher: **Carolina Biological Supply Co.** Copyright: **2022**

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

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

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
3. Alignment & 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 **engage students** in integrating the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) to support deeper learning.	**Yes**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. In the Metabolic Reaction unit, Lesson 5, students Analyze and Interpret Data (SEP) that shows what happens to a graham cracker after entering the mouth. They look at the Structure and Function (CCC) of saliva by reading “What is Spit” to gain knowledge about that bodily fluid. Then they look for Patterns (CCC) in images of complex molecules to Plan and Carry Out an Investigation (SEP) to figure out if a chemical reaction is taking place in the mouth. This supports students' understanding that food is broken down into smaller molecules (DCI, LS1.C). Throughout the entire Chemical Reactions and Matter unit, students interact with the chemical makeup of bath bombs. At several stages, students model findings, revise those models, and show how their learning has progressed. Additionally, they repeatedly look for patterns in chemical

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			make-up of bath bombs that could explain the formation of gas bubbles when bombs are placed in water. Specifically in Lesson 3, students investigate Bath Bombs in several forms to discover if they contain gasses inside of them that cause bubbles when or if their ingredients react with water to create gas bubbles. Students begin by Analyzing and Interpreting Data (SEP) for bath bombs, both store bought and homemade, to see if there are Patterns (CCC) found across all ingredient lists. Students then test each ingredient individually to see if it reacts with water on its own to create gas bubbles (DCI, MS.PS1B.a). In the Thermal Energy unit, Lesson 1, students observe two different types of cups of cold liquid and the different rates at which the liquid is warming to room temperature (DCI, MS.PS3B.b). Students develop systems models (SEP, Developing and Using Models) to show what may be happening in the cups where one is better at maintaining the cold temperature of the liquid than the other (SEP, Asking questions and defining problems). They brainstorm about the possibilities of different materials and design features that might be better at keeping liquids cold or hot. Students propose different investigations (SEP, Planning and Carrying Out Investigations) they may need to conduct in order to learn more about how some materials and designs transfer or

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			contain energy better than others (CCC, Energy and Matter).
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. 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. Each unit starts with a big question about the phenomenon that becomes the focus of the unit. In the Metabolic Reactions unit, students start out by looking at medical charts for a girl their age who is seemingly very sick and has been for several months even though she eats healthy, loves to play sports, and has previously been very healthy and active. As students analyze data, create models of the digestive system, and learn how the digestive system works, students connect their knowledge gained back to the phenomena by answering the question, “How do things inside our bodies work?” In the Ecosystem Dynamics unit, Lesson 1, students read the headlines of the issues with orangutan habitat. Students learn that chocolate may be to blame for the orangutan’s problems and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			discover that one of the ingredients in chocolate, palm oil, may be to blame. In Lessons 2-15, students then learn about why palms are even grown and ecosystem dynamics, functioning and resilience which prompts students to figure out if there is a more efficient way to create palm oil farms that allow all organisms to live together (Lessons 16-19). The Chemical Reactions & Matter unit introduces students to the phenomenon of bubbles created when a bath bomb is placed in water. This helps set the stage for the overarching student question of "How can we make something new that was not there before?" Students return to this phenomenon frequently throughout the unit as they investigate where the gas is coming from, the make-up of the gas, and the chemical processes that lead to its formation to explain the reaction of the bath bomb in water.
	Required **2b)** Materials are designed to provide sufficient opportunities for students to **design and engage in investigations at a level appropriate to their grade band** to explain phenomena. This includes testing theories or models, generating data, and using reasoning and scientific ideas to provide evidence to support claims.	**Yes**	Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. Material, when appropriate, allows for students to engage directly with experiments designed to discover the phenomena. The materials provide frequent opportunities for students to authentically engage with the Science and Engineering Practices by designing and conducting investigations around student-generated questions and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			analyzing data needed to support a claim or develop an explanation related to a phenomenon. In the Thermal Energy Unit, Lesson 3, students create a model to illustrate the properties of the cups that are the best at keeping the liquid cold and those which do not keep the liquid cold, affecting the temperature change of the liquid inside the cup system they developed. Students further develop the cup system by testing the implementation of a lid to continue to slow the rate of temperature change of the cold liquid within the cup. The students continue to expand this investigation to determine if the cup system they created will retain the hot temperature of the liquid. Students are supplied with the materials to test the cup systems which include cold and hot water, thermometers, timers, straws, plastic wrap, tape, 16 ounce cups of various materials (styrofoam, plastic, paper), lids, color pencils and a replenishment of materials as needed. In Ecosystem Dynamics, Lesson 8, students simulate how biotic factors in the environment interact. Students learn that as resources go down, the number of orangutans living in the forest also decreases because of competition. In the Metabolic Reactions unit, Lesson 6, students use data to identify patterns as food molecules travel through the digestive system and its subsystems.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	2c) Materials provide frequent opportunities for students to **make meaningful connections** to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.	**Yes**	Materials provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena. Sensemaking supports the materials' framework and the flow of learning. Investigation and exploration provide students the ability to individually and collaboratively put different pieces together to make sense of phenomena. Many of the units utilize phenomena that may be familiar to students and all units include the opportunity for students to generate related phenomena based on their own experiences and prior knowledge. In the Metabolic Reaction unit, Lesson 1, the Attending to Equity box in the Developing a Consensus Model section of the lesson encourages teachers to prompt students to share their initial thoughts on the topic of the unit. This particular box provides information on setting up this discussion in such a way that students can see each other, creating a dynamic setting for productive discussions. Students return to these ideas throughout the unit with evidence to see if their ideas are accurate or not. In the Weather, Climate and Water Cycling unit, Lesson 13 includes an online Hurricane Assessment Task found in the Individual Student Assessments. During the assessment, students individually demonstrate understanding to explain air

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and water movement in a hurricane. In the Chemical Reactions Unit, Lesson 6, the Attending to Equity box in the Navigation section of the lesson suggests teachers return to previously listed related phenomena and how it can be explained with the information learned so far. Related phenomena are compiled by students in previous lessons based on personal experiences and observations students may have had.
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**	The majority (12 out of 16) of the Louisiana Student Standards for Science are incorporated to the full depth of the standards. Standards that are not fully addressed in the materials include: LSSS 7-MS-ESS3-5, 7-MS-LS3-2, 7-MS-LS4-4, and 7-MS-LS4-5. While Disciplinary Cores Ideas (DCIs) from the standards listed are not integrated into the materials, identified Science and Engineering Practices (SEPs) and Crosscutting Concepts (CCCs) are often integrated and explored throughout multiple units. LSSS 7-MS-LS1-6 and 7-MS-ESS2-4 are fully addressed with the exception of Louisiana-specific DCI component MS.EVS1A.a. LSSS 7-MS-LS1-3 is fully addressed with the exception of the DCI component MS.LS1D.a.
	Required **3b)** The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. The six units combined contain 104 lessons ideally taught over 196 days. Addressing the total content in a school year is possible if units are

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			condensed or shortened using guidance in the teacher edition.
	Required **3c)** 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. Information in the units is up to date, with current video links and experiments that are relevant to current science principles. Each of these units have been revised within the last two years ensuring that all information has been updated. Incorrect or out of date science explanations are not evident in the materials. In the Thermal Energy unit, Lesson 11, students use a simulation to observe the movement of molecules depending upon their temperature. The simulation shows that when heat is applied, the molecules move faster and when heat is subtracted, the molecules move more slowly. In the Matter and Photosynthesis unit, students read “Stevia” and “Sucralose” which include up-to-date content. Students learn that both are sweeteners that people use that are relatively new to the U.S. and that the body does not absorb them to use for energy. In the Metabolic Reactions unit, Lessons 2, 7, 8, 10 and 13, students observe medical data including endoscopy videos, images of the human body burning fat over time, and zoomed in images of the small intestine.

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	3d) In any one grade or course, instructional materials spend **minimal time on content outside** of the course, grade, or grade-band.	**Yes**	Instructional materials spend minimal time on content outside of the course, grade, or grade-band. Instructional materials are to spend the major portion of their time within grade band levels but do expose students to minimal materials above grade bands to maintain coherence in relation to the phenomenon. LSSS outside of the grade level addressed in the materials include Grade 6 LSSS 6-PS1-1, 6-PS 4-2, 6-LS2-1, 6-LS2-2, 6-LS2-3 and Grade 8 LSSS 8-LS1-5, 8-PS1-3, 8-PS3-3, and 8-PS3-5. In the Chemical Reactions unit, Lesson 9, Where We Are Going, teacher guidance notes that this unit is supposed to be the first Grade 7 unit taught. Guidance concerning the Grade 6 content learning progressions and what materials to inquire from Grade 7 math teachers is provided. The Thermal Energy unit addresses three standards from the Grade 6 and Grade 8 LSSS. However, LSSS 6-LS2-3 is addressed as a review and is important to bring the concepts full circle in understanding. In addition, while LSSS 8-PS1-3 is addressed, it is not covered in so much depth that it takes away from the unit.
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	**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 primary source documents, photographs, and authentic data sets. In the Ecosystem

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
writing to develop scientific literacy. ☒ Yes ☐ No	engagement with authentic sources should increase in higher grade levels and courses.		Dynamics unit, Lessons 8 and 9, students read reference material about canola farms in Canada and Soybean Farms in the Midwest then compare them to the Palm Oil Farms they have been learning about. This comparison not only allows students to expand their scientific knowledge but also provides students the opportunity to develop a greater understanding of the world around them. In the Thermal Energy Unit, students analyze data collected from hands-on scientific investigations as well as computer simulations. In Lessons 1-10, students investigate the relationship between energy changes and temperature change by gathering evidence from different types of cups. In Lessons 11-13, students utilize a computer simulation to explore the rates of movement of molecules when they are hot and when they are cold. For the remainder of the unit, students use their acquired information to design and test a cup that deters the transfer of energy and keeps a liquid cold. In the Matter Cycling and Photosynthesis unit, students read grade-level appropriate content that is adapted from real news, such as the article “How do Scientists Measure Food'' which is adapted from an article of the same name from *Scientific America.*

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	Required **4b)** Students regularly engage in **speaking and writing** about scientific phenomena and engineering solutions using authentic science sources; e.g., authentic data, models, lab investigations, or journal excerpts. Materials address the necessity of using **scientific evidence** to support scientific ideas.	**Yes**	Students regularly engage in speaking and writing about scientific phenomena and engineering solutions using authentic sources. Materials address the necessity of using scientific evidence to support ideas. Students regularly engage in productive science talk to generate driving questions, build understanding, and come to consensus. They also present and revise designs, gather evidence from multiple sources, and explain findings. In all units, students regularly engage in Driving Question Boards in which they provide questions about real-world phenomena that help guide their learning experience. They also present and revise designs, gather evidence from multiple sources, and explain findings. Students turn and talk with peers regularly and such activities are clearly marked in the materials. Students also engage in Building Understanding Discussions and Science Circles where students learn how to respectfully argue from evidence information that they have learned. For example, in the Metabolic Reactions unit, Lesson 3, students engage in a Scientist Circle to come to a consensus on how to use models and investigation results to help explain absorption in the body. During this discussion, the class model of the system under investigation is updated. The teacher looks for specific ideas during this discussion as a way to gauge student understanding of the investigation.

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			Students keep a scientific notebook for each unit. In the Thermal Energy unit, Lesson 1, students enter observed data into their notebooks, noting the change in temperature over time for two different types of cold cups of liquid. Students interpret the data with their partner. They draw models in their notebooks to illustrate their observations. Then, as a class, they discuss what they can infer from the data and the models. In the Ecosystem Dynamics unit, students argue with evidence during the Consensus discussion. Students make a chart showing patterns. Teacher notes for Lesson 2 states, "As students share oral arguments, push them for evidence from the readings and infographics to support their claims."
	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. Within each unit, students produce and revise models of the anchoring phenomenon. Across the materials, students regularly engage in a variety of tasks, such as constructing written explanations, planning and conducting investigations, making observations and collecting data with simulations, reading scientific texts, and designing using criteria and constraints. For example, in the Weather and Climate and Water Cycling unit, students engage with the phenomenon through hands-on lab activities, videos and images, data sets, readings, and computer interactives and simulations.

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			Lesson 1 provides video clips of hail falling in different areas of the United States on different days. Students generate questions for the Driving Question Board as to what can cause different types of precipitation. Lesson 2 provides data on different hail events and images of hail stones. Students look for patterns to create explanations about the images and data. Lesson 9 provides a reading about cloud formation, patterns, and composition to determine how they are related to weather phenomena. In the Matter Cycling and Photosynthesis unit, Lesson 2, students answer the question "Do plants get food molecules by taking them in?" Students engage in a wet lab where they observe and record data and test plants for different organic molecules. They study this hydroponic system based on inputs to see what is going into the plants from below the surface. In the Thermal Energy unit, Lessons 2 and 3, students observe different types of drink cups and how they keep drinks hot or cold. Students plan and carry out investigations, and develop a model to illustrate how molecules or particles react to open and closed systems in terms of temperature change. They draw diagrams to reflect their findings. In Lesson 11, students use a simulation to obtain evidence that the particles in hot liquids move at a faster rate than that of colder liquid particles.

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	Required **4d)** Materials provide a coherent sequence of learning experiences that **build scientific vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	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. Throughout the materials, students build a word wall with words they earn or encounter or words that are reinforced. Students co-create the definitions as they are discovered in the lessons. The materials include a Guidance for Developing your Word Wall in each teacher's section to support students in this process. Guidance suggests that each class period creates their own, but accurate, definitions on a separate wall, if possible, or at least in individual notebooks. Vocabulary lists are not given at the beginning of a lesson. Some terms appear throughout the materials and are reinforced in each unit or lesson. For example, in the Matter Cycling & Photosynthesis unit, Lesson 13, students read about organisms that use leftover food. Students then participate in a discussion to lead them to the concept of decomposers, producers and consumers, terms previously developed in Grade 6 but reintroduced in this unit. Under the Student Lesson Resources tab, vocabulary is explained within the text and is italicized or bold typed. There is no separate glossary nor is vocabulary set up

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			to be taught prior to the lessons. As students read material and work through investigations, vocabulary is reinforced. For example, in one of the closed readings for Lesson 9, "Can Other Gases in the Air Turn into Liquids or Solids?" vocabulary is infused within the readings to give relevance to how the terms are used in context. They are in bold to stress that these are new words in the unit. In the Ecosystem Dynamics unit, Lesson 7, teachers add population to the word wall and prompt students to use it throughout their discussion. In Lesson 9, teachers add fluctuation and stable on day one because of the experiment discussion. In Lesson 11, teachers reinforce what it means to be in an ecosystem and add it to the word wall.
Section II: Additional Criteria of Superior Quality			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the Louisiana Student Standards for Math. ☒ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear, and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The 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. Teacher guidance includes a Unit Overview and Storyline that outlines how asking questions and investigations drive student learning as they develop science concepts and figure out the answer to their

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			questions throughout the unit. The Unit Overview also includes what the students will figure out, how they will represent what they learned, and how they will engage with all three dimensions in each lesson. The materials also include a section of background knowledge that provides additional guidance for adjusting the sequence of the units if taught out of order. These resources support student mastery of the Performance Expectations and maintain coherence. For example, in The Chemical Reactions unit, students begin by observing what happens to a bath bomb when water is added to it and learn that a gas is formed. Students then spend the rest of the unit progressively researching the ingredients in bath bombs and testing those ingredients to see which ones create the gas. As student learning progresses, students create and update models of what is happening inside the bath bombs at a level not observable with naked eyes. This allows for a gradual understanding of how different substances react when combined together then placed in water. During the first half of the unit, students gather and record evidence on their model and Progress Tracker. This information is used in the second half of the unit to Construct and Explanation and Design Solutions and Engage in Argument from Evidence (SEP). In the Thermal Energy unit, students compare and contrast the insulative

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			properties of two different cups to determine how energy is being transferred into the drink, changing its original temperature. Students apply their findings to a design challenge to develop a drink cup that can perform as well or better than the cups they investigated. As they begin their investigations, they build upon Grade 5 understanding that explains the particle movement of solids, liquids, and gasses as they create models to illustrate this concept. In the Ecosystem Dynamics unit, Lesson Set 4, Lessons 14- 20, students investigate, design, and communicate their findings. This lesson set is at the end of the unit and two lessons are considered extensions; however, the lessons provide students the opportunity to engage in a logical progression of science. The students learn that humans and the environment need to work together. They learned earlier in the unit that palm oil is more land-friendly than other oil forms. In Lesson 14, they see that farmers using methods other than monocropping are seeing good results. They read three articles about different types of farming. In Lesson 15, as a class, students use this information in a jigsaw activity to see the benefits of this kind of farming. By Lesson 17, students use a simulation to design a better farm that helps people and the orangutan population.

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	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 Grade 7 Louisiana Student Standards for Mathematics (LSSM). Students regularly apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning. For example, in the Chemical Reactions unit, students work towards DCI PS1.B in regards to the total number of each type of atom related to the mass which requires students to calculate the mass before and after a chemical reaction to ensure they are equal. In Lesson 8, students measure, graph, and calculate density from mass and volume data (LSSM 7.RP.A.2.A, 7.RP.A.2.B). In the Weather, Climate, and Water Cycling unit, Lesson 2, students use ratios to generate rates reflecting the number of storms per year in an area and wind speeds in miles per hour. Students apply this learning to lessons that follow in the unit (LSSM 6.RP.A.2). In Lesson 16, students calculate differences in x-values and y-values from data points found on graphs illustrating air temperature versus the amount of water vapor in the air with air saturations of 100% and 50% relative humidity (LSSM 6.NS.C.8).

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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). Support also includes teacher guidance in the materials' **approach to phenomenon based instruction** and provides explicit guidance on how the materials address, build, and **integrate the three dimensions**.	**Yes**	There are separate teacher support materials provided. Support materials include extensive teacher guidance with a Unit Overview and Storyline. The teacher resources are located online within each unit and provide all of the unit specific resources needed to teach the units and lessons. Once accessing the materials online, each unit is shown independently. A series of tabs provides the Unit Storyline and how the students will engage with the unit phenomenon. The Unit Overview tab includes the standards and NGSS performance standards information for the unit. The Teacher Background Knowledge provides guidance for the SEP, CCC, and DCI applications within the unit. The materials include a 3-D Strategies section that detail techniques to further support the development of SEPs, DCIs, and CCCs. The Assessment System Overview tab provides the type and timing of assessments (formative and summative) throughout the unit to determine student understanding of the standards. The Investigation Materials tab lists the materials required for each lesson within the unit. It also identifies which materials are included with the materials kits and which must be obtained by the teacher. The Unit Resources tab shows unit resources for both teacher and student which can be printed out and/or assigned online through Google Classroom. Each lesson includes a detailed

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			learning plan as well as a section that clarifies where the lesson is going and where it is not going, guiding how in-depth students should engage within the content. Additional resources include editable slide presentations to guide the lesson step-by-step, the Learning Plan Snapshot that details how much time each section of the lesson should take, a Lesson Overview that details how many days the lessons should take, and Learning Objectives that describe what the students should be expected to master. The Unit Overview section of the teacher dashboard provides teachers with all necessary information needed to facilitate and implement the materials.
	Required **6b)** Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is **developmentally appropriate**.	**Yes**	Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is developmentally appropriate. Within each lesson, Support materials include: a Teacher Background section (scientific background about the Disciplinary Core Ideas of the unit), 3D Strategies sections that detail explicit techniques for highlighting and SEPs, DCIs, and CCCs, and sample prompts and conversation guides for class discussions with a Where We Are Going and NOT Going section. The dashboard also includes teacher reference sections with additional information and pictures of how investigations should look. Each unit

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			has a section that outlines how each SEP and CCC develops throughout the unit. The units also have posters and handouts for communicating in science, classroom norms, and discussion skills to support students with sensemaking about phenomena and demonstrating scientific knowledge and skills. For example, in the Metabolic Reactions unit, Lesson 5, Section 9, the Strategies for Building Understandings Discussion section helps the teacher guide the students in using investigation information to explain questions from previous lessons. In Lesson 7, Section 4, the Attending to Equity section, provides a differentiation lesson strategy in order to provide all students with ways to be successful. In the Weather, Climate, and Water Cycling unit, downloadable Teacher Guides explain how each part of the unit contributes to student learning, what prior knowledge students will need to be successful in the lessons, and possible misconceptions students may have that need to be addressed. The Teacher Resources guide includes rubrics and examples of what student responses should include or look like while referencing the concept or standard.
	Required **6c)** Support for **English Learners and diverse learners** is provided. Appropriate suggestions and materials are provided for **supporting varying student needs** at the unit and lesson level. The language in which questions	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. Each Unit Overview includes a pacing guide in which teachers

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	and problems are posed is not an obstacle to understanding the content, and if it is, additional supports are included (e.g., alternative teacher approaches, pacing and instructional delivery options, strategies or suggestions for supporting access to text and/or content, suggestions for modifications, suggestions for vocabulary acquisition , etc.).		can utilize to plan opportunities for students who need additional experiences and time developing core ideas of the unit. Each unit contains teacher guides which include support and guidance assistance in sidebar callout boxes noted as Attending to Equity and subheadings such as Supporting Emerging Multilingual Learners and Supporting Universal Design for Learning. Other callout boxes that include strategies include: Additional Guidance, Alternate Activity, and Key Ideas, among other various discussion callouts. Each unit includes the development of a Word Wall as part of students' routines for earning or encountering scientific language. Each Unit Overview also includes a Phenomenon Relevance Note with suggestions for modifying the anchoring phenomenon to increase accessibility or local and cultural relevance for students, as needed. The Teacher Handbook provides materials' design to promote equitable access to high-quality science learning experiences for all students by focusing on relevance, collaborative sensemaking, and involving all students in the learning process. The materials utilize a universal design for learning principles to meet the needs of all learners and emphasize classroom culture and norms. The materials also provide a Spanish Student Edition and teacher guides for each unit. For example, in the Ecosystem

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			Dynamics unit, the Teacher Dashboard includes a Learning Plan section. Support materials for Lesson 2 include step-by-step guidance to help students. Guidance informs teachers to introduce the pre-reading strategy, partner read. It also informs teachers to make connections with the ELA standards as students look for the main idea. In the Chemical Reactions Unit, Lesson 2, Learning Plan, the Alternate Activity box provides guidance for teachers about claims. It provides suggestions on ways to reteach or introduce students to the term in class. Later in the plan, the Key Ideas box provides information on the purpose of the discussion for that section of the lesson which includes a Listen for these ideas section. This guidance assists teachers in formatively assessing students in real time to see if they understand the current concept or if more time is needed before moving to the next step. In the Weather, Climate, and Water Cycling unit, the Teacher Handbook explains how to use the Scientist Circle to build equity in classroom discussions and understanding for all learners. For diverse learners, the handbook includes specific question and sentence prompts to help all students explain their learning.
7. USABILITY: Materials are easily accessible, promote safety in the science classroom, and are viable for	**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 information needed for activities are readily available.

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implementation given the length of a school year. ☒ Yes ☐ No			Text sets are identified, lab materials are listed, and procedure setups are clearly provided. Once accessing the Unit Resources tab for each unit, PDF copies of handouts and printables needed for each lesson are available and include the option of loading each to Google Classroom for each unit. The vendor provides kits for each unit. Consumables are listed for each lesson that the teacher and/or school provides, referred to as Locally Sourced, and include such common items as safety glasses, markers, copy paper and pencils. Each unit includes a list of materials needed for each lesson and number of students per group that are vendor provided and locally provided. Links are available for purchase with the vendor as needed. For example, in Matter Cycling and Photosynthesis, in the Unit Overview Materials tab includes a section for advanced preparation needed. For Lesson 2, guidance indicates that the teacher needs already grown plants and provides a timeline for the lesson. In Lesson 10, guidance notes that teachers need to buy spinach no earlier than 2 days ahead of time. In the Weather, Climate, and Water Cycling unit, most materials are provided in the kits. The materials to be obtained by the teacher which can be locally sourced are easily obtainable and reasonable to have on hand in a science classroom and include items such as rubber bands, rulers, plastic spoons, and paper towels.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	Required **7b)** Materials help students build an understanding of standard operating procedures in a science laboratory and include **safety** guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the curriculum.	**Yes**	Materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment. Science Lab Safety guidance and guidelines are provided for teachers and for the students and their parents. Students are exposed to a variety of different types of investigations and experiments requiring various safety equipment and procedures. Each time a learning opportunity of this type is presented, a Safety Precaution box appears in the teacher manual and is designated with a yellow triangle containing an exclamation mark. The information contained in the box is specific for that investigation. It is expected for schools to provide the safety equipment for their science classrooms such as goggles, gloves, and aprons. The Teacher Background tab provides a link to print a lab safety hard copy for students and parents to sign. The PDF and access to post the PDF on Google Classroom is located under the Unit Resources tab. The Unit Overview Materials provides a section of lab safety recommendations for any lesson with an investigation in the unit. These recommendations include wearing safety goggles, wiping up spilled water, proper disposal of waste materials, and other standard Lab safety precautions. For example, in the Thermal Energy unit, the Teacher Background

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Knowledge section includes information for lab safety in the science classroom. With each lesson, additional safety suggestions are found relevant to the materials used in the investigations as well as information about whether they are safe to be used with students or if it is a teacher only activity. In the Metabolic Reactions unit, Lesson 10, the Student Safety Precaution suggests that the teacher ensures the area is where they can safely conduct burn tests in parts 1 and 2 of the lab. Guidance also cautions that the teacher should ensure that, if they are in a lab, the tables are non-flammable, to let the front office know what is going on just in case the smoke alarm goes off, and to be sure there is a fire extinguisher available as an additional precaution. Notes are included for the lab that state duck fat can get messy and that students may want to wear aprons and gloves. In the Matter Cycling and Photosynthesis unit, Lesson 1, the Materials and Preparation tab suggests that teachers check for food allergies before proceeding with the unit activities.
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. Assessments are embedded in the lessons and allow students to demonstrate understanding and knowledge developed through the unit. Formative assessments are

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			embedded in the lessons such as questions, discussion prompts, written explanations, and models. Each unit includes an Assessment System Overview that outlines both formative and summative assessment opportunities, student self-assessments, and lesson-by-lesson assessment opportunities with the three dimensions highlighted. The materials also include task assessments in the forms of design challenges and presentations. Most lessons included a Progress Tracker for student self-assessment which can be used to formatively assess individual student progress or for students to assess their own understanding throughout the unit. The Unit Resources tab of each unit provides PDF copies of assessments to use with the units. For example, in the Weather, Climate, and Water Cycling unit, Assessment System Overview online located in the Unit Overview drop down menu, the assessment opportunities for each lesson are identified and explained. The unit's Online Handouts section provides editable and pdf versions of assessments and the answer keys. Lesson 1 clarifies that student work in this lesson is to be considered as a pre-assessment opportunity. The Driving Question Board can also be used as a pre-assessment opportunity. In the Ecosystem Dynamics unit, Lesson 10, Section 3 includes an assessment opportunity for students to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			draw conclusions about how changes in resource availability affect populations in the short and long term. The materials provide guidance for teachers on what to do if they do not hear students responding with the requested look or listen fors. Towards the end of this unit, in Lesson 10, students engage in a summative assessment in which they apply all that they have learned about Ecosystem populations of orangutans to write CER responses about butterflies on the prairies as a transfer task.
	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 the integration of the three dimensions and include opportunities to engage students in applying understanding to new contexts. Throughout all the lessons of the units, students revise models to reflect new understanding that comes from the data collected from previous investigations and acquisition of new knowledge from readings, videos, computer simulations and student seminars. Each lesson includes at least one lesson level performance expectation (LLPE) which are three-dimensionally structured to include the SEP, DCI, and CCC. The Teacher Guide for each lesson within the Lesson-by-Lesson Assessment Opportunities section lists the LLPEs for each lesson. The SEP, DCI, and CCC that correspond are color-coded to readily identify their alignment to the assessments used with each lesson. The

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Unit Assessments of each unit integrate Science and Engineering Practices as students use data, writing, explanations, and models to explain the anchor phenomena. For example, in the Matter Cycling and Photosynthesis unit, Lesson 15, End-of-Unit Assessment, students create a model (SEP, Developing and using Models) to explain the interactions between components in the system (CCC, Systems and System Models) as they relate to matter and energy inputs and outputs (DCI, MS.PS3D.a). Students then explain (SEP, Constructing Explanations) the change in inputs and outputs over time within the system (CCC, Energy and Matter, Systems and System Models) as the whale fall is consumed given seafloor conditions related to plants, light and oxygen (DCI, MS.LS1C.a). The whale fall scenario allows students to transfer the knowledge they developed by investigating where food comes from and where it goes throughout the unit.
	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. All units include answer keys and rubrics for major assessments as well as criteria such as look fors/listen fors that call out all three dimensions of Performance Expectations. Graded and non-graded assessments are included as well as the models students build. Rubrics for teacher and peer

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			feedback are also included. For example, in the Thermal Energy unit, an answer key and rubric are included for the assessment in Lesson 14, Icing Injuries Assessment, intended to identify student understanding about the mechanisms that drive energy transfer and the direction of the transfer between differences in temperature. The Assessment Scoring Guide specifies in which lessons learning occurred and the level of understanding evidenced by acceptable responses. The Weather, Climate, and Water Cycling unit includes answer keys and rubrics for the summative Hurricane Assessment Task and the Rainforest Climate Assessment Task found in the Teacher Portal under the tab Teaching the Lesson Resources. The rubrics and answer keys describe what student understanding and misunderstandings might look like in reference to student created map markings, drawings, and 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

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			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**	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 purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon. Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. Materials provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.
	3. Alignment & Accuracy	**Yes**	The majority (12 out of 16) of the Louisiana Student Standards for Science are incorporated to the full depth of the standards. All reviewed content is accurate, up-to-date and aligned with the most current and widely accepted explanations. 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
	4. Disciplinary Literacy	**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 primary source documents, photographs, and authentic data sets. 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. 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.
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. Students apply mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			that go beyond the Grade 7 Louisiana Student Standards for Mathematics.
	6. Scaffolding and Support	**Yes**	Separate teacher support materials provided. Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is developmentally appropriate. Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets (when applicable), laboratory, and other scientific materials are readily accessible through vendor packaging. 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 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 1, Exemplifies quality**			

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: **OpenSciEd, Carolina Certified Version** Grade/Course: **8**

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

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

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
2. Phenomenon-Based Instruction (Non-negotiable)	
3. Alignment & 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 **engage students** in integrating the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) to support deeper learning.	**Yes**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of the materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. In the Rock Cycling and Plate Tectonics unit, students develop knowledge to explain how mountain formations are the result of energy flowing and matter cycling within and among the earth's systems. In Lesson 2, students analyze data (SEP, Analyzing and Interpreting Data) using the Seismic Explorer to determine if there is a Pattern (CCC) with greater earthquake activity at mountains of increasing elevation (DCI, MS.ESS2A.b). In Lesson 5, students develop an argument based on evidence (SEP, Constructing Explanations and Designing Solutions) about the Cause and Effect (CCC) relationship between plate movement and mountain movement (DCI, MS.ESS2A.b). Students look for Patterns (CCC) by examining GPS data (SEP, Analyzing and Interpreting Data) to determine land movement around Mt. Mitchell then use a physical model (SEP,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Developing and Using Models) to demonstrate that the entire North American plate moves at a constant speed and in a specific direction (DCI, MS.ESS1C.c, MS.ESS2B.a). In the Chemical Reactions and Energy unit, students engage in a variety of scientific practices to develop a heater to incubate turtle eggs. In Lesson 3, students investigate (SEP, Planning and Carrying Out Investigations) different reactants to determine which chemical reaction increases temperature the most. After analyzing the data (SEP, Analyzing and Interpreting Data), students create a model (SEP, Developing and Using Models) of the energy transfer during the chemical reaction (DCI, MS.PS1B.c, MS.PS1A.a; CCC, Energy and Matter, Scale, Proportion, and Quantity). In Lesson 6, students use information gathered from previous lessons to redesign a flameless heater to better transfer energy from chemical processes to heat food. They develop models and prototypes using criteria and constraints then plan for design testing. This process culminates in Lesson 7 where students critique different designs of flameless heaters and determine the most promising design characteristics (SEP, Designing Solutions; CCC, Energy and Matter, Systems and System Models; DCI, MS.ETS1.C.a). In the Natural Selection and Common Ancestry unit, students engage in a variety of activities to explain changes

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			of life forms throughout the history of life on Earth. In Lesson 4, students analyze fossil data from Reference: Analyzing and Interpreting Fossil Data then share their interpretation of the data with their classmates. Students then compare penguin fossil body structure with today's variation of penguins and discuss why they believe these variations happened (SEP, Mathematical and Computational Thinking, Analyzing and Interpreting Data; CCC, Scale, Proportion, and Quantity; DCI, MS.LS4A.a). In Lesson 5, students analyze data from other organisms to look for patterns across fossils and modern organisms. They sort organisms by structures and by environments then work in groups to create a model that demonstrates the connections between the organisms. Students then share their models and record the patterns they notice across organisms (SEP, Developing and Using Models, Analyzing and Interpreting Data; CCC, Patterns; DCI, MS.LS4A.a and MS.LS4A.b).
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. 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 units, and this provides purpose for students to engage

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			in the investigations and lessons that follow as they work towards figuring out the phenomena. Each unit starts with a big question about the phenomenon that becomes the focus of the unit. In the Chemical Reactions and Energy unit, students engage in several investigations to answer the question, "How can we use chemical reactions to design a solution to a problem?" The lessons are designed to build students' knowledge of chemical reactions and heat production to develop sea turtle incubators. For example, in Lesson 2, students investigate the question, "How do heaters get warm without a flame?" by revising a previous investigation to discover how hot flameless heaters and hand warmers get hot and collect data to support the idea that a chemical reaction causes the devices to heat up. Then, in Lesson 3, students engage in activities to answer the question, "What other chemical reactions could we use to heat up food?" In Lessons 5-9, students design, evaluate and redesign their homemade flameless heaters. Students use these heaters to answer the final question in Lesson 10, "How can we decide between competing designs?" Within this lesson, students develop a design for sea turtle incubators. In the Rock Cycling and Plate Tectonics unit, students engage in several activities to answer the anchor phenomenon question, "What is causing Mt. Everest

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and other mountains to move, grow, or shrink?" In an introduction to the unit, students read an excerpt about how Mt. Everest is getting taller and moving to the northeast over time. The students analyze data for four other mountains and infer that these mountains are also changing in elevation and shrinking. Students develop an initial model and generate questions, a list of related phenomena, and the information needed to determine what is happening to these mountains. This is done before students investigate the relationship between earthquakes and mountains in Lesson 2 and collect data using a Seismic Explorer. In order to conduct a deeper investigation of the correlation between earthquakes and mountain locations in Lesson 3, students develop models and gather data about the structure and composition of materials at and below the surface of the Earth. In Lessons 4-6, students further investigate what happens below the surface to develop an understanding of tectonic plates and how they could cause movement and elevation changes in mountains. Lesson 9 leads students back to the Driving Question Board based on the anchor phenomena and determines which questions have been answered and what they still need to find out. They spend the next lessons exploring the locations of plates and mountain ranges over the course of Earth's history. In

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Lessons 13-14, students work to answer a couple of lingering questions, "What causes mountains to shrink in elevation?" and "How is there an exposed marine fossil on Mt. Everest?" allowing students time to successfully generate an explanation for the anchor phenomenon. In the Genetics unit, students observe pictures of animals of the same species with very different musculature and ask questions about the extreme differences in the animals. The unit design provides the opportunity for students to answer the anchor phenomenon, "Why are living things different from one another?" In Lesson 4, students develop a consensus model about the structure of muscles and the cells that compose them in order to answer the question, "What is different about the food and exercise for cattle with extra-big muscles?" After discussing muscle structure, the lesson returns to the anchor phenomenon as students listen to an interview with a farmer who raises cattle with extra big muscles. In Lesson 5, students investigate the question, "Where do the babies with extra-big muscles get that trait variation?" Students develop a pedigree chart for cattle, predicting patterns of inheritance that determine the physical traits of the offspring.
	Required **2b)** Materials are designed to provide sufficient opportunities for students to **design and engage in investigations at a level appropriate to their grade**	**Yes**	Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	band to explain phenomena. This includes testing theories or models, generating data, and using reasoning and scientific ideas to provide evidence to support claims.		explain phenomena. Material, when appropriate, allows for students to engage directly with experiments designed to discover the phenomena. The materials provide frequent opportunities for students to authentically engage with the Science and Engineering Practices by designing and conducting investigations around student-generated questions and analyzing data needed to support a claim or develop an explanation related to a phenomenon. In the Genetics unit, Lesson 1, students start off by identifying that animals have different traits by looking at animal muscles then modeling what they think is the cause of this difference. They then further explore this phenomenon by analyzing and interpreting data. In the Chemical Reactions and Energy unit, Lesson 3, students use common materials such as baking soda, vinegar, root killer, cabbage juice, salt water, aluminum foil, steel wool, and styrofoam cups to investigate exothermic reactions, seeking to determine the combination of materials that generates the greatest amount of heat, to create a flameless heater model. In Lesson 4, they further explore this phenomenon by planning and conducting an investigation to determine the most effective proportion of reactants.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	2c) Materials provide frequent opportunities for students to **make meaningful connections** to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.	**Yes**	Materials provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena. Sensemaking supports the materials' framework and the flow of learning. Investigation and exploration provide students the ability to individually and collaboratively put different pieces together to make sense of phenomena. Many of the units utilize phenomena that may be familiar to students and all units include the opportunity for students to generate related phenomena based on their own experiences and prior knowledge. In the Earth's Resources and Human Impact unit, Lesson 1 introduces the anchoring phenomenon of droughts and flood events in different communities and the increasing occurrence of these phenomena in different areas as illustrated by news headlines from around the United States. Teachers begin the lesson with a connection to a "local water story" with suggestions on how to do so. Later in the lesson, students add their personal "water stories" to a visual related to problems of "not enough water" and "too much water" in other communities. Students share and discuss their personal experiences and knowledge of similar events. In Lesson 2, students develop an Earth's Water System model which is revised throughout the unit to explore the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			relationships between temperature and precipitation. Discussion prompts encourage students to make connections to where the water in their community comes from and temperature/ precipitation relationships locally. In the last few lessons in the unit, students use a design matrix to evaluate different solutions to the problem behind the water issues and design a resilience plan for their local communities. In the Natural Hazards unit, students start Lesson 1 with a video showing how a tsunami affected Japan. Later in this lesson, students consider local examples of natural hazards and their family's experiences and knowledge related to natural hazards. In Lessons 2-4, students learn about where tsunamis come from and how they impact coastal communities. In the next lesson set, 5-10, students learn how people detect tsunamis and how the community at large is warned. This leads to students discussing other natural hazards and how to better warn the public of them. The unit culminates with students analyzing patterns of hazards to determine the risk of each locally and plan communications about the risk of a chosen hazard.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **3. ALIGNMENT & ACCURACY:**	**Required** **3a)** The majority of the Louisiana Student Standards for Science are incorporated, to the full **depth of the standards**.	**Yes**	The majority (14 out of 19) of the Louisiana Student Standards for Science are incorporated to the full depth of the standards (LSSS). Standards that are not fully addressed in the materials include: LSSS 8-MS-PS 1-1, 8-MS-PS1-3, 8-MS-ESS1-

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Materials adequately address the Louisiana Student Standards for Science. ☒ Yes ☐ No			4, 8-MS-ESS 3-1, 8-MS-ESS3-3. While some Disciplinary Cores Ideas (DCIs) from the standards listed are not integrated into the materials, identified Science and Engineering Practices (SEPs) and Crosscutting Concepts (CCCs) are often integrated and explored throughout multiple units. For LSSS 8-MS-PS 1-1, DCI MS.PS1A.e is not addressed. Developing and using models is supported in practice in several units, Chemical Reactions and Energy, Rock Cycling and Plate Tectonics, Genetics. Scale, Proportion and Quantity is deeply integrated into the Chemical Reactions and Energy Unit. For LSSS 8-MS-PS1-3, DCI MS.PS1A.b is not addressed. Obtaining, evaluating, and communicating information is partially supported in practice by all units. Credibility and bias of information obtained is not addressed. Structure and Function is deeply integrated in the Genetics unit. For LSS 8-MS-ESS1-4, DCI MS.ESS1C.b is not addressed. Constructing explanations and designing solutions is supported in practice by several units: Rock Cycling and Plate Tectonics, Natural resources and Human impact, Genetics, and Natural Selection. Patterns are integrated in all units. For LSS 8-MS-ESS3-1, DCI MS.ESS3A.a is partially addressed focusing only on water and air components, and DCI MS.EVS1A.b is not addressed. Constructing explanations and designing solutions is supported in practice by

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			several units, including: Rock Cycling and Plate Tectonics, Natural resources and Human impact, Genetics, Natural Selection. Cause and Effect is deeply integrated into several units including: Rock Cycling and Plate Tectonics, Natural resources and Human impact, Genetics, and Natural Selection. For LSS 8-MS-ESS3-3 DCI's MS.ESS3C.a, MS.ESS3C.b, and ETS.MS.1B.a are partially addressed focusing only on the Carbon Cycle. Constructing explanations and designing solutions is supported in practice by several units, including: Rock Cycling and Plate Tectonics, Natural resources and Human impact, Genetics, Natural Selection. Cause and Effect is deeply integrated into several units, including Rock Cycling and Plate Tectonics, Natural resources and Human impact, Genetics, and Natural Selection.
	Required **3b)** The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. The materials include six units, with lessons and investigations totaling 155 days of instruction. In addition, each unit contains a section in Teacher Background Knowledge that outlines extension opportunities within lessons.
	Required **3c)** 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. Science content is up to date and based on

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			current science educational practices. Each of these units have been revised within the last two years ensuring that all information has been updated. Students engage in problem-solving, evidence-based arguments, engineering practices, and hands-on learning activities to stimulate high-order thinking. In the Natural Selection and Ancestry unit, Lesson 1, students watch live feeds of animals and analyze the behavior, structure, and environment of organisms. In the Student Edition, students have access to data from scientists, who are in the top of their field, such as Dr. Sara Bertelli and Sr. Ali Altimanaro. In the Rock Cycle and Plate Tectonics unit, students use a Seismic Explorer with the most current data throughout the unit. In the Natural Resources and Human Impact unit, Lesson 1, students read headlines about Flooding and Droughts occurring in the United States. Two examples of Headlines came from the Milwaukee Journal Sentinel, 2020, and ABC, 2019.
	3d) In any one grade or course, instructional materials spend **minimal time on content outside** of the course, grade, or grade-band.	**Yes**	Instructional materials spend minimal time on content outside of the grade or grade-band. Time spent on material outside of the grade serves to maintain coherence in relation to the phenomenon or to build upon previous knowledge. For instance, in Natural Hazards, the Teacher Edition provides information students should bring from Grade 4 and revisit in the 6-8 grade band. The Teacher Edition

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			includes the Scope and Sequence for the two previous grade levels which provides teachers with the opportunity to know what content students should have and how teachers are to implement content when there are student learning gaps. In the Chemical Reactions and Energy unit, Lesson 2 and Lesson 12 spend time reviewing content from the Grade 7 containing information on average kinetic energy of molecules. In the Natural Hazards unit, for students to understand how Tsunamis develop and move, students revisit wave properties taught in the Grade 6 Sound unit.
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 primary source documents, photographs, and authentic data sets. In the Rock Cycling and Plate Tectonics unit, Lesson 2, students watch videos of a Mount Everest eruption and a Ridgecrest, California earthquake to predict causes for the disasters. Then students use the Seismic Explorer, either confirming or denying their initial predictions of the earthquake locations based upon the presence of potential mountains and ranges. In the Genetics unit, Lesson 9, students read two interviews from real farmers and an article titled “Raising Heavily Muscled Cattle to Reduce Environmental Impacts of Cattle”

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to explore the idea of selective breeding in cattle. Students explore a simulation that controls bird breeding in order to create individuals with selected-for trait variations. In the Natural Selection unit, Lesson 2, students analyze trait variation data from two resources: "Fossil evidence for evolution of the shape and color of penguin feather" and "Paleogene equatorial penguins challenge the proposed relationship between biogeography, diversity, and Cenozoic climate change," *Proceedings of the National Academy of Sciences*. In Genetics, Lesson 9, students read three different articles about selective breeding in cattle. Students conduct an investigation using a simulation to control breeding of birds in order to create individuals with selected-for variations. Students track their discoveries and ask extended questions to explain knowledge learned.
	Required **4b)** Students regularly engage in **speaking and writing** about scientific phenomena and engineering solutions using authentic science sources; e.g., authentic data, models, lab investigations, or journal excerpts. Materials address the necessity of using **scientific evidence** to support scientific ideas.	**Yes**	Students regularly engage in speaking and writing about scientific phenomena and engineering solutions using authentic sources. Materials address the necessity of using scientific evidence to support ideas. Students regularly engage in productive science talk to generate driving questions, build understanding, and come to consensus. They also present and revise designs, gather evidence from multiple sources, and explain findings. In all units, students regularly engage in Driving Question Boards in which they provide

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			questions about real-world phenomena that help guide their learning experience. They also present and revise designs, gather evidence from multiple sources, and explain findings. Students turn and talk with peers regularly and such activities are clearly marked in the materials. Students also engage in Building Understanding Discussions and Science Circles where students learn how to respectfully argue from evidence information that they have learned. For example, in the Rock Cycling and Plate Tectonics unit, Lesson 2, Day 1, students make predictions and discuss evidence to support whether earthquakes caused Mount Everest to increase in height or change locations. Then, students make claims and gather evidence from observations on whether earthquakes can make changes to mountains. In the Natural Hazards unit, Lesson 1 introduces students to the anchor phenomena as they read about and watch the 2011 tsunami triggered by an earthquake off the eastern coast of Japan, causing devastating loss of life and structural damage. Students develop initial engineering ideas intended to detect tsunamis, provide warning of their approach, and reduce their impact. Students think about what makes some engineering ideas more promising or challenging than others. Students then brainstorm and share with peers other

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			related natural hazards and ask questions to generate a list of data and information needed to better understand where these hazards occur and how people can prepare for them. In Genetics, Lesson 3 students read and evaluate a number of articles and compare them to a checklist for credibility. By using this checklist students are able to determine if the information is credible and, if it is, they go on to determine the central claim and if it relates to what is currently being studied.
	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. Within each unit, students produce and revise models of the anchoring phenomenon. Across the materials, students regularly engage in a variety of tasks, such as constructing written explanations, planning and conducting investigations, making observations and collecting data with simulations, reading scientific texts, and designing using criteria and constraints. For example, in the Rock Cycle and Plate Tectonics unit, Lesson 1, students create an initial model to explain the reasons for changes in height and location of Mount Everest. This model is revised throughout the unit. In Lesson 3, students investigate rocks to determine their properties. In Lesson 4, students use a Seismic Explorer, which is periodically used to locate earthquakes around the world. In Lesson 6, students create physical models to demonstrate how

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			plates move. In the Chemical Reactions and Energy unit, Lesson 2, students revise an investigation to see how hot flameless heaters and hand warmers get. Students collect data to support the idea that a chemical reaction is happening when the devices heat up. Students research different ingredients and observe changes in the substances as they warm up to confirm new substances are produced. Students then model energy transfer in the Meals Ready to Eat (MRE) using their evidence. In Natural Hazards, Lesson 2, students analyze the data on ArcGIS Story Map to determine patterns of where tsunami occurs. Once patterns are determined in Lesson 3, students watch videos and simulation models to make observations of what happens to water during a tsunami. In Lesson 8, students engage in a close reading protocol to gather information about warning signals for a tsunami. Lastly, at the end of the unit, students design a community risk assessment for a natural disaster.
	Required **4d)** Materials provide a coherent sequence of learning experiences that **build scientific vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	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. Throughout the materials, students build a word wall with words they earn or encounter or

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			words that are reinforced. Students co-create the definitions as they are discovered in the lessons. The materials include a Guidance for Developing your Word Wall in each teacher's section to support students in this process. Guidance suggests that each class period creates their own, but accurate, definitions on a separate wall, if possible, or at least in individual notebooks. Vocabulary lists are not given at the beginning of a lesson. Some terms appear throughout the materials and are reinforced in each unit or lesson. For example, in the Rock Cycling and Plate Tectonics unit, Overview Materials, an explanation is provided about how to introduce vocabulary words and the difference between earned and encountered words. The materials outline which lessons students encounter and earn words. For example, in Lesson 1, students earn the vocabulary words magnitude and earthquake. In Lesson 2, students encounter the vocabulary words, earthquake depth, epicenter, causation, and correlation. In the Natural Hazards unit, Lesson 3, students use a NOAA model utilizing the words amplitude and epicenter. Although these are words from a previous year, students add the words to their word wall during the lesson discussion. In the Chemical Reactions and Energy unit, Lesson 3, Day 2, students add the words exothermic and endothermic to the word wall but only after they have

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			already observed and developed a model for an exothermic reaction.
Section II: Additional Criteria of Superior Quality			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the Louisiana Student Standards for Math. ☒ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear, and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The 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. Teacher guidance includes a Unit Overview and Storyline that outlines how asking questions and investigations drive student learning as they develop science concepts and figure out the answer to their questions throughout the unit. The Unit Overview also includes what the students will figure out, how they will represent what they learned, and how they will engage with all three dimensions in each lesson. The materials also include a section of background knowledge that provides additional guidance for adjusting the sequence of the units if taught out of order. These resources support student mastery of the Performance Expectations and maintain coherence. For example, in the Natural Hazards unit, students explore the anchor phenomena and ways to lessen the effects of natural hazards by detecting when they are happening, warning people, and designing solutions to reduce

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			damage. Students then design an initial solution. Throughout the lessons, students use maps, graphs, physical models, videos, and simulations to identify the causal reasons for where and how tsunamis form, move, and what happens as the tsunami reaches shore. Students then work to identify criteria and constraints across different aspects of a hazard response system, including structural design solutions to reduce damage, technologies to detect and send warning signals, along with communication and education plans that target stakeholders in the communities that will be impacted by a natural hazard. Students use a systematic process to evaluate different design solutions, technologies, and communication options, including how reliable types of signals are for warning people and protecting communities. In the Chemical Reactions and Energy unit, lessons are designed to build students' knowledge about chemical reactions and heat production to develop sea turtle incubators. In Lesson 1, students develop an initial model to consider how the flameless heater in an MRE works. In Lessons 2 and 3, students learn how hot flameless heaters and hand warmers can get and collect data to support the idea that a chemical reaction happens when the devices heat up. During the rest of the unit, students design, evaluate, and redesign their homemade flameless

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			heaters. In the final lessons, students apply the knowledge gained throughout the unit to design sea turtle incubators. The first half of the unit works to help students gather evidence and record it on their model and progress tracker they use to construct an explanation and design solutions to engage in argument from Evident in the second half of the unit.
	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 Grade 8 Louisiana Student Standards for Mathematics (LSSM). Students regularly apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning. For example, in the Chemical Reactions and Energy unit, students use a variety of math skills to analyze data and build models. In Lesson 3, students calculate the maximum temperature change for three different amounts of reactants. They report this change in temperature using positive and negative numbers to show the increase or decrease from the starting temperature. (LSSM 6.NS.C.5). In Lesson 4, students determine the relative proportion of each reactant that showed the optimal temperature change by calculating the percentage of each reactant. (LSSM 6.RP.A.3c) In Lesson 6 and Lesson 9, students scale up the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			amount of reactants to use in their homemade heaters but maintain the same proportion of reactants they found to be most efficient in previous testing (LSSM 6.RP.A.3). In the Natural Resources and Human Impact unit, students engage in mathematical thinking, rate and ratio reasoning, and encounter many histograms, line graphs, and scatter plots. In Lesson 7, students practice writing one gas as a fraction using a parts per million measurement, and then students share how they would turn the fraction into a percent (LSSM 6.RP.A.1, 6.RP.A.3). In Lessons 9 and 10, students analyze graphs to determine carbon dioxide levels in the atmosphere. Students then annotate the graph on Examining Data Over Time to show human activities that have led to changes in the types of energy sources that people used over time. In Genetics, Lesson 8, students read Student Support for Probability Work so they can use mathematical thinking to simplify their predictions about the probabilities of the genotypes of the offspring of two parents. After the students read, they use either a Punnett square or probability calculations to make predictions about specific crosses (LSSM 7.SP.C.5, 7.SP.C.6, 7.SP.C.7, 7.RP.A.2, 5.NF.B.4).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
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). Support also includes teacher guidance in the materials' **approach to phenomenon based instruction** and provides explicit guidance on how the materials address, build, and **integrate the three dimensions**.	**Yes**	There are separate teacher support materials provided. Support materials include extensive teacher guidance with a Unit Overview and Storyline. The teacher resources are located online within each unit and provide all of the unit specific resources needed to teach the units and lessons. Once accessing the materials online, each unit is shown independently. A series of tabs provides the Unit Storyline and how the students will engage with the unit phenomenon. The Unit Overview tab includes the standards and NGSS performance standards information for the unit. The Teacher Background Knowledge provides guidance for the SEP, CCC, and DCI applications within the unit. The materials include a 3-D Strategies section that detail techniques to further support the development of SEPs, DCIs, and CCCs. The Assessment System Overview tab provides the type and timing of assessments (formative and summative) throughout the unit to determine student understanding of the standards. The Investigation Materials tab lists the materials required for each lesson within the unit. It also identifies which materials are included with the materials kits and which must be obtained by the teacher. The Unit Resources tab shows unit resources for both teacher and student which can be printed out and/or assigned online through Google Classroom. Each lesson includes a detailed

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			learning plan as well as a section that clarifies where the lesson is going and where it is not going, guiding how in-depth students should engage within the content. Additional resources include editable slide presentations to guide the lesson step-by-step, the Learning Plan Snapshot that details how much time each section of the lesson should take, a Lesson Overview that details how many days the lessons should take, and Learning Objectives that describe what the students should be expected to master. The Unit Overview section of the teacher dashboard provides teachers with all necessary information needed to facilitate and implement the materials.
	Required **6b)** Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is **developmentally appropriate**.	**Yes**	Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is developmentally appropriate. Within each lesson, Support materials include: a Teacher Background section (scientific background about the Disciplinary Core Ideas of the unit), 3D Strategies sections that detail explicit techniques for highlighting and SEPs, DCIs, and CCCs, and sample prompts and conversation guides for class discussions with a Where We Are Going and NOT Going section. The dashboard also includes teacher reference sections with additional information and pictures of how investigations should look. Each unit

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			has a section that outlines how each SEP and CCC develops throughout the unit. The units also have posters and handouts for communicating in science, classroom norms, and discussion skills to support students with sensemaking about phenomena and demonstrating scientific knowledge and skills. For example, in the Earth's Resources and Human Impact unit, The Middle School Program Overview contains additional links to multiple teacher resources, such as illustrations and explanations of how to use the materials in the lessons to guide the students in the development of understanding of scientific concepts. In the Natural Selection unit, the Unit Storyline provides a short overview of the unit as well as NGSS dimensions developed in the unit, common student ideas, ways to modify the unit if it is taught out of sequence from other units, and ways to shorten or lengthen the unit.
	Required **6c)** Support for **English Learners and diverse learners** is provided. Appropriate suggestions and materials are provided for **supporting varying student needs** at the unit and lesson level. The language in which questions and problems are posed is not an obstacle to understanding the content, and if it is, additional supports are included (e.g., alternative teacher approaches, pacing and instructional delivery options, strategies or suggestions for supporting access to text and/or content, suggestions for modifications, suggestions for vocabulary acquisition , etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. Each Unit Overview includes a pacing guide in which teachers can utilize to plan opportunities for students who need additional experiences and time developing core ideas of the unit. Each unit contains teacher guides which include support and guidance assistance in sidebar callout boxes noted as Attending to Equity and subheadings

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			such as Supporting Emerging Multilingual Learners and Supporting Universal Design for Learning. Other callout boxes that include strategies include: Additional Guidance, Alternate Activity, and Key Ideas, among other various discussion callouts. Each unit includes the development of a Word Wall as part of students' routines for earning or encountering scientific language. Each Unit Overview also includes a Phenomenon Relevance Note with suggestions for modifying the anchoring phenomenon to increase accessibility or local and cultural relevance for students, as needed. The Teacher Handbook provides materials' design to promote equitable access to high-quality science learning experiences for all students by focusing on relevance, collaborative sensemaking, and involving all students in the learning process. The materials utilize a universal design for learning principles to meet the needs of all learners and emphasize classroom culture and norms. The materials also provide a Spanish Student Edition and teacher guides for each unit. For example, in the Tsunami unit, Lesson 2, the Additional Teacher Guidance provides teachers with sentence starters which helps students express what they observe. The Supporting Emerging Multilingual sidebar guides teachers into intentionally grouping emerging multilingual students with

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			certain peers who know the same languages or with peers whose English language development is slightly more advanced.
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 information needed for activities are readily available. Text sets are identified, lab materials are listed, and procedure setups are clearly provided. Once accessing the Unit Resources tab for each unit, PDF copies of handouts and printables needed for each lesson are available and include the option of loading each to Google Classroom for each unit. The vendor provides kits for each unit. Consumables are listed for each lesson that the teacher and/or school provides, referred to as Locally Sourced, and include such common items as safety glasses, markers, copy paper and pencils. Each unit includes a list of materials needed for each lesson and number of students per group that are vendor provided and locally provided. Links are available for purchase with the vendor as needed. For example, in the Rock Cycling and Plate Tectonics unit, each lesson includes a list of the materials needed listed per student, per group, and per class, as well as a description of the activity preparation. This information is found on the lesson set up under the Plan tab. In the Chemical Reactions and Energy unit, Teachers Edition, Lesson 3, a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			materials list for student investigation per student, per group, and per class is provided. Teachers are also provided with a materials preparation time of 90 minutes.
	Required **7b)** Materials help students build an understanding of standard operating procedures in a science laboratory and include **safety** guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the curriculum.	**Yes**	Materials help students build an understanding of standard operating procedures in a science laboratory and include safety guidelines, procedures, and equipment. Science Lab Safety guidance and guidelines are provided for teachers and for the students and their parents. Students are exposed to a variety of different types of investigations and experiments requiring various safety equipment and procedures. Each time a learning opportunity of this type is presented, a Safety Precaution box appears in the teacher manual and is designated with a yellow triangle containing an exclamation mark. The information contained in the box is specific for that investigation. It is expected for schools to provide the safety equipment for their science classrooms such as goggles, gloves, and aprons. The Teacher Background tab provides a link to print a lab safety hard copy for students and parents to sign. The PDF and access to post the PDF on Google Classroom is located under the Unit Resources tab. The Unit Overview Materials provides a section of lab safety recommendations for any lesson with an investigation in the unit. These recommendations include

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			wearing safety goggles, wiping up spilled water, proper disposal of waste materials, and other standard Lab safety precautions. For example, in the Rock Cycling and Plate Tectonics unit, Unit Overview, the Teacher Background information provides lab safety requirements. For example, in the Chemical Reactions and Energy unit, Teacher Portal, Quick Launch, Learning Plan Day One, and Safety Data Sheet, a safety protocol list for students is provided. Specific safety precautions are marked with yellow caution signs in the teacher call-out box on the side. In Lesson 6, Day 2, students use the How-To Instructions Must-Haves to craft a set of instructions for their flameless heater. In Lesson 9, Day 2, safety precautions for testing the students' prototypes are embedded in the materials. At the end of the lesson, students follow instructions on safely cleaning up after the investigation.
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 content materials and assess the learning targets. Assessments are embedded in the lessons and allow students to demonstrate understanding and knowledge developed through the unit. Formative assessments are embedded in the lessons such as questions, discussion prompts, written explanations, and models. Each unit includes an Assessment System Overview

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			that outlines both formative and summative assessment opportunities, student self-assessments, and lesson-by-lesson assessment opportunities with the three dimensions highlighted. The materials also include task assessments in the forms of design challenges and presentations. Most lessons included a Progress Tracker for student self-assessment which can be used to formatively assess individual student progress or for students to assess their own understanding throughout the unit. The Unit Resources tab of each unit provides PDF copies of assessments to use with the units. For example, in the Chemical Reactions and Energy unit, Lesson 3, Assessment Opportunity, a formative assessment check focuses on energy transfer between parts of a system. Lab handouts from the lesson's investigation can be utilized as a formative assessment. In Lesson 6, an Exit Ticket builds on what students learned in Lesson 3. Students map the idea for their specific design solution to the Energy Transfer Model. In Lesson 10, students have an opportunity to demonstrate an understanding on a summative assessment transfer task about sea turtle incubators. In Natural Selection and Ancestry, the Teacher Overview Materials include examples of unit assessments. In Lesson 13, students use their general model for natural selection to construct a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			scientific explanation of how modern penguins are connected by a common ancestry. Lesson 11 includes a summative assessment of their choice (oral presentation, written response, pictorial response) where students can use their general model for natural selection to explain a new phenomenon.
	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. At least one Lesson-Level Performance Expectation (LLPE) is included within each lesson of the units which are three-dimensionally structured to include the SEP, DCI, and CCC. The assessments in each unit integrate SEPs in assessments as students use data, construct explanations, and develop models to address the anchor phenomena. The SEPs, DCIs, and CCCs are color-coded to readily identify their alignment to the assessments used with each lesson. In Genetics, Teacher Edition, Lesson 10, students complete a transfer task where students create a model (SEP, Developing and Using Models) to explain the Cause and Effect (CCC) relationship that leads to trait variation from the parent's genotypes to the offspring's phenotype using goldfish (DCI, MS.LS3A.a). In Natural Hazards, Lesson 4, a formative assessment assesses students' ability to construct an explanation (SEP,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Constructing Explanations and Designing Solutions) that describes how sudden geologic forces in the ocean floor can cause a tsunami, how different communities may be at varying risk of damage, and which communities should be prioritized for tsunami mitigation resources (CCC, Stability and Change; DCI, MS.ESS2C.e). In Lessons 9 and 10, the summative assessment for the unit challenges students to first investigate general regional Patterns (CCC) in risk for other natural hazards by exploring large sets of data (SEP, Analyzing and Interpreting Data), as well as the risk of each natural hazard for their local community (DCI, MS-8-ESS3-2).
	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. All units include answer keys and rubrics for major assessments as well as criteria such as look fors/listen fors that call out all three dimensions of Performance Expectations. Graded and non-graded assessments are included as well as the models students build. Rubrics for teacher and peer feedback are also included. For example, in Natural Hazards, Lesson 9, answer keys/rubrics are provided for teacher use assessment for grading an assessment for developing a tsunami system model. Students evaluate their models using the Engineering Self-Assess, using information

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			from the Engineering Self-Assessment and Peer Feedback Guidelines. In the Genetics unit, the answer key and rubric provided for the formative assessment, in Lesson 7, Revise Your Model, is used to determine student's knowledge of how an animal's genotype can influence its phenotype of musculature. For Lesson 10, students use a Checklist for obtaining and evaluating information from scientific text that will be used for a transfer task on goldfish genetics. Answer keys and rubrics are provided for both the checklist and assessment.

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**	Phenomena in the form of common experiences at the beginning of each unit spark students to generate questions and

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			define problems to motivate learning about the core ideas of the unit, and this purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon. Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. Materials provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.
	3. Alignment & Accuracy	**Yes**	The materials incorporate the majority (14 out of 19) of the Louisiana Student Standards for Science (LSSS) to the full depth of the standards. All reviewed content is accurate, up-to-date and aligned with the most current and widely accepted explanations. Instructional materials spend minimal time on content outside of the course, grade, or grade-band.
	4. Disciplinary Literacy	**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 primary source documents, photographs, and authentic data sets. Students regularly engage in speaking and writing about scientific phenomena and engineering

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			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. 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 first have the opportunity to build conceptual understanding of the term.
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 clear, organized, and coordinated over time. Students apply mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills that go beyond the Grade 8 Louisiana Student Standards for Mathematics.
	6. Scaffolding and Support	**Yes**	Separate teacher support materials provided. Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is developmentally appropriate. Appropriate suggestions and

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets (when applicable), laboratory, and other scientific materials are readily accessible through vendor packaging. 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 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 1, Exemplifies quality**			

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 2022-2023 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: A.E. Phillips, Ascension, Belle Chasse Academy, Bienville, Caddo, Calcasieu, Catholic Diocese of Baton Rouge -REACH Department, East Baton Rouge, Hynes Charter School Corporation, Iberia, Iberville, Jefferson, KIPP New Orleans, Lafayette, Lafourche, Lincoln, Louisiana Virtual Charter Academy, LSU Laboratory School, Orleans, Monroe City Schools, Morehouse, Orleans, Ouachita, Plaquemines, Rapides, Richland, St. Landry, St. Martin, St. Mary, St. Tammany, Tangipahoa, University View Academy, Vermillion, Webster, West Feliciana, and Zachary Community Schools. This review represents the work of current classroom teachers with experience in grades 6-12.

Appendix I.

Publisher Response

The publisher had no response.

Appendix II.

Public Comments

There were no public comments submitted.