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: **Amplify Science Louisiana** Grade/Course: **6-8**

Publisher: **Amplify Education, Inc.** Copyright: **2021**

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

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

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

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)

DEPARTMENT of EDUCATION
Louisiana Believes

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Title: **Amplify Science Louisiana** Grade/Course: **6**

Publisher: **Amplify Education, Inc.** Copyright: **2021**

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

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

STRONG	WEAK
1. Three-dimensional Learning (Non-negotiable)	
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5. Learning Progressions	
6. Scaffolding and Support	
7. Usability	
8. Assessment	

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

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

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

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

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

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Section I: Non-negotiable Criteria of Superior Quality **Materials must meet Non-negotiable Criteria 1 and 2 for the review to continue to Non-negotiable Criteria 3 and 4. Materials must meet all of the Non-negotiable Criteria 1-4 in order for the review to continue to Section II.**			
Non-negotiable **1. THREE-DIMENSIONAL LEARNING:** Students have multiple opportunities throughout each unit to develop an understanding and demonstrate application of the three dimensions. ☒ Yes ☐ No	**Required** **1a)** Materials are designed so that students develop scientific content knowledge and scientific skills through **interacting with the three dimensions** of the science standards. The majority of the materials teach the science and engineering practices (SEP), crosscutting concepts (CCC) and disciplinary core ideas (DCI) separately when necessary but they are most often integrated to support deeper learning.	**Yes**	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. For example, in the Matter and Energy in Ecosystems Unit, Chapters 1 and 2, students develop models to describe the cycling of matter and energy among living and nonliving parts of an ecosystem. Students use a virtual Modeling Tool to develop a model (SEP, Developing and Using Models) to describe both photosynthesis and cellular respiration. Within the Modeling Tool, students input a producer, consumer and decomposer to show the transfer of energy (CCC, Energy and Matter) and carbon dioxide through the ecosystem. Students input arrows into the Modeling Tool to show how decomposers recycle materials from dead plants and organisms (DCI, MS.LS2B.c). In the Force and Motion Unit, Chapter 2, Lesson 2.3, students use a simulation to observe how mass, velocity, and force are related. In Activity 1, they make predictions on how equal force

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			should affect an object with different masses. In Activity 3, students model (SEP, Developing and Using Models) their ideas about how an equal force would affect the motion of a pod with more vs. less mass. Students engage with Constructing Explanations (SEP) as well as Scale and Proportion (CCC) to explain how force and velocity changes proportionally on objects of different masses. These activities lead students into carrying out an investigation (SEP, Planning and Carrying out Investigations) in Lesson 2.5 as they use a simulation tool to review key ideas about how variations in mass and force cause changes in velocity (CCC, Cause and Effect). During these activities, students develop the understanding that force, mass and velocity are proportional relationships and that mass of an object affects its velocity from an equal force (DCI, MS.PS3A.a). In the Earth, Moon, and Sun Unit, Chapter 1, Lesson 1.2, students investigate the source of the Moon's light. To begin the lesson, students view a video introducing them to the term "terminator," referring to the border between light and dark on the moon. This information, in conjunction with analyzing photos of light on the moon and exploring the Earth, Moon, and Sun Simulation, helps students determine the best time to take moon photos. By using the Earth, Moon, and Sun Simulation, students explore and create models (SEP,

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			Developing and Using Models) that they use throughout this unit to show how the location of the Earth, Moon, and Sun can influence the way the light reflects off the moon (DCI, MS.ESS1A.a; CCC, Systems and Models). These initial activities lay the foundation for activities for the remainder of the unit. In the Population and Resources Unit, Chapters 2 and 3, students use a Populations and Resources Simulator to track the birth and death rates within a given population. Students engage in Analyzing and Interpreting Data (SEP) as they run through several different application scenarios given within the assignment. Students manipulate the environment within the Population and Resources Simulation to limit resources for a given population or change the number of a particular species to visualize the Cause and Effect (CCC) with a given population (DCI, MS.LS2A.a/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 learning a majority of the time.	**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. This provides purpose and opportunity for students to engage in the investigations and lessons that follow as they work towards making sense of the phenomenon. At the start of each unit, the Anchoring phenomenon is a fictional but realistic scenario that students will investigate in the role of a scientist. The

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			students are tasked with finding a solution or explaining a problem as presented in the unit opener. Accomplishing the proposed task drives instruction by providing the purpose and opportunity for learning in the unit. Each subsequent chapter in the unit has an investigative phenomenon for students to explore. There is a unit question and a question for each chapter which coincides with the Anchor and Investigative phenomena; however, students also develop their own thought-provoking questions throughout the units and refine what they know as they gain more knowledge. Each lesson is connected to the one before as students incrementally gain knowledge about the anchor phenomenon through key concepts developed throughout the lessons. In the Magnetic Fields unit, students are introduced to a magnetic spacecraft launcher and are tasked with investigating why the model spacecraft exceeded the target speed in the third test run of a magnetic spacecraft launcher test. This requires students to make sense of science concepts to explain not only how a magnetic spacecraft launcher could work but also to explain the unexpected test results. In Chapter 1, students first investigate magnets to determine how the launcher can make the model spacecraft move without touching it. This leads to investigating the origin of the energy to launch the model spacecraft in Chapter 2

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			where students develop the understanding that moving a magnet against a magnetic force transfers energy to the magnetic field. In Chapter 3, students develop the concept that the strength of the magnetic forces affects the amount of potential energy that can be stored in the magnetic field. By the end of the chapter, students use these concepts learned during the unit to develop an explanation for the unexpected results in the third test. Finally, in Chapter 4, students apply what they have learned as they evaluate different designs used to launch an electromagnetic roller coaster. In the Microbiome Unit, students act as researchers looking at a case study about fecal transplants. They have to figure out how this fecal transplant helped aid in a patient's recovery. They then have to argue about whether this novel treatment warrants the use of public funds. In Chapter 2, Lesson 2.7, students come up with their scientific argument to be used for a “press release” for the Microbiome Research Institute. Over the course of the chapter, the students gain knowledge and apply what they have learned to complete the task set forth in the phenomenon. In the Force and Motion Unit, Chapter 1, Lesson 1.2, students watch an introduction video, “The Missing Seconds,” that sparks their interest and introduces them to the anchoring phenomenon within the fictional Universal

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			Space Agency mission. The video shows an asteroid sampling-collecting pod returning from a collecting mission. As it approaches, the video feed cuts out, and when it comes back online, the pod is no longer approaching the space station but floating away. The space agency gives the students a mission to solve why an asteroid sampling-collecting pod, after the video feed cut out, is no longer seen approaching the space station. As students develop scientific concepts about force, motion, mass, and collisions in the following chapters, they are referred back to the anchoring phenomenon/mission throughout the unit. By the end of Chapter 3, students use evidence to explain what happened to the pod and then apply what they have learned to explain a newly presented phenomenon in Chapter 4.
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, 68% (13 out of 19), of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards. LSSS 6-MS-PS2-4 is only partially addressed within both the Magnetic Field Unit and the Force and Motion Engineering Internship. In the Magnetic Field Unit, students read the article “Escaping a Black Hole” and answer two questions regarding gravitational force. In the Motion Engineering Internship, the materials provide an optional reading, “The Physics of Falling,” to help explain gravity. Students do not

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			fully engage with the standard as the materials do not incorporate any SEPs or CCCs when addressing the standard. LSSS 6-MS-PS4-2 is only partially addressed as the materials do not fully address all of the DCIs embedded within the standard. In the Light Waves Unit, DCI MS.PS4A.b is only addressed at the end of Chapter 2, Lesson 2.3 in a homework assignment. Students do not fully engage with the DCI as they read an article and then answer three questions regarding sound waves. LSSS 6-MS-ESS1-2 and 6-MS-ESS1-3 are only partially covered. The main focus of the Earth, Moon, and Sun Unit is to describe the interaction between the three planetary objects and how their interaction can create the phases of the moon and eclipses. In Chapter 4, students are tasked to investigate the possibility for a lunar eclipse in a possible solar system with two suns, but students do not discuss the importance of the sun and its gravitational pull that causes the earth and other objects to orbit around it (DCI MS.ESS1B.a). No evidence was found within the unit that discussed other planetary structures located within our solar system and their interactions within our galaxy (DCI, MS.ESS1B.c). LSSS 6-MS-LS1-1 is addressed in the FlexExtension Microbiome Unit Assignment. The Teacher Guide and instructions states that the FlexExtensions are optional. A teacher must select a separate document to view

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			the FlexExtensions. LSSS 6-MS-LS1-2 is only partially addressed in the materials. In the Microbiome Unit, Chapter 1, Lesson 1.2, Homework, students read an article, "Cells," and answer three questions about cells. Students do not fully engage in any SEPs or CCCs during the activity. In Matter and Energy in Ecosystems, students are introduced to the organelles, chloroplast and mitochondria, and learn about their functions. These are the only organelles that students are introduced to within the unit (DCI MS.LS1A.b).
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	All reviewed content is accurate, up-to-date and aligned with the most current and widely accepted explanations. No evidence of incorrect or out-of-date science explanations could be found.
	3c) In any one grade or course, instructional materials spend **minimal time on content outside** of the course, grade, or grade-band.	**Yes**	Instructional materials spend minimal time on content outside of the course, grade, or grade-band. At times, some of the lessons go further in depth than what is expected of Grade 6 students. This occurs most often in the lesson extensions and does not take away from addressing on grade level content. For example, in the Population and Ecosystem Unit, LSSS 7-MS-LS2-4 and 7-MS-LS2-5 are slightly addressed but are more of an extension of the learning of 6-MS-LS2-1, 6-MS-LS2-2, and 6-MS-LS2-3 instead of a distraction.

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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. Additionally, the Unit Launcher for each unit includes an excerpt from a scientific article or a real life situation for students to analyze and discuss within the context of their studies. For example, in the Forces and Motion Unit, students become acquainted with the tasks they will be completing as they assist physicists working to determine what happened to an asteroid sample-collecting pod that went off course. To prepare for the investigation, students share their initial thoughts on two claims of what may have happened to the pod based upon prior knowledge. Then, they conduct a hands-on investigation about changing an object's motion, both from a stationary starting position and as an already-moving object, using a simulation and hands-on activities. Students identify the five ways that the motion of an object can change and discover that forces cause changes in motion. Vocabulary is introduced as needed and reinforced by use throughout the unit. At the end of the unit, students participate in a science seminar. Students engage in a scientific argument and use the evidence they gathered throughout

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			the unit to refute or support the initial claims. Students also brainstorm to find other ways in which the principles they have discovered can be applied. In the Microbiome Unit, Chapter 2, Lesson 2.1, students read "The Human Microbiome: A World Inside You." In the article, students learn about helpful and harmful microorganisms that live on and in the human body. Students annotate the article and think of questions and comments as they read. Students discuss the annotations through a share, discuss, and present model. Students use the information from the article in the lessons that follow as they work toward the unit task of helping the Microbiome Research Institute figure out how the tiny organisms in one person's microbiome can fight harmful bacteria in someone else's body. In the Matter and Energy in Ecosystems Unit, students watch an introduction video, "Living in a Biosphere," that shows how Biosphere 2, a self-contained ecosystem, was closed in 1992 to test whether an ecosystem could survive under glass for possible outer planetary communities. The video provides the opportunity for students to revisit history and see how far technology has advanced and where it could go next. Throughout the unit, students refer back to Biosphere 2 to discover solutions for recreating a better Biosphere. In the Light Waves Unit, students investigate why the skin cancer

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			rate in Australia is so high. Through a short documentary video, students meet a real spectroscopist and find out what her job involves. To learn how light from the sun can cause skin cancer, they gather evidence about why light can cause materials to change. Students obtain evidence about how light interacts with materials through hands-on investigations and electronic simulation activities. Students use maps, charts, short videos and articles to evaluate evidence about the amount of sunlight in Australia compared to other places in the world. For example, in Lesson 2.5, students use a World Sunlight Map that displays total hours of bright sunlight per year on average, two bar graphs that show the estimated percentage of populations with each melanin level in Brazil and Australia, and a World Ultraviolet (UV) Light Map that shows the amount of ultraviolet light in joules per square meter. Students use this authentic data to evaluate claims about Australia's high skin cancer rate. During the activity, students make sense of the evidence, discuss and record their thinking in their Investigative Notebooks, and use key concepts and evidence to help explain why the skin cancer rate is higher in Australia than in Brazil. The purpose of this chapter is for students to understand that light from the sun carries energy and that when a material absorbs energy from light, the energy causes the material to

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			change. At the end of the unit, students participate as a whole class in the Science Seminar. Here students make sense of evidence, synthesize content and debate which claims are best supported.
	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. All units include an activity of speaking and writing about scientific phenomena. Students use evidence based upon authentic data, models (either provided by the teacher or generated by the student), hands-on or simulation lab activities, and scientific articles to engage in scientific argumentation and debate in order to write their final claim. Within four different units, Population and Resources Unit, Matter and Energy in Ecosystems Unit, Earth, Moon, and Sun Unit, and Light Waves Unit, students engage in Science Seminars which allow students to speak and engage in scientific arguments supported by evidence they collected for the subject. In the Earth, Moon, and Sun Unit, Chapter 4 Science Seminar, students assert whether or not it is possible for a lunar eclipse to occur on a planet called Kepler-47c in a galaxy with two suns. In Lesson 4.1 and 4.2, students review scientific ideas they developed about when lunar eclipses occur on Earth in the

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			revolutions around the sun. In Lesson 4.3, students apply that knowledge to understanding to the planet Kepler-47c. In almost every unit, students engage in writing a cause and effect summary to explain the anchoring phenomenon. For example, within the Matter and Energy in Ecosystems Unit, Chapter 3, Lesson 3.4, students write a summary that includes evidence they collected throughout the first two chapters to help scientists for Biosphere 2 better understand why plants and animals were not getting enough energy storage molecules to survive.
	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 module, students are asked to produce and revise models of the anchoring phenomenon. Across the materials, students are regularly engaged in a variety of tasks, such as creating models, solving problems, explaining phenomena, and drawing conclusions from investigations. For example, in the Microbiome Unit, students begin by viewing a video that introduces the problem to solve for the unit followed by a "gross" microscopy slideshow. They work in pairs to sort cards of microorganisms and molecules according to relative size. There is an Investigation Notebook in which they document evidence and answer analyzing questions. They view a student-generated video about cells and discuss what they have seen, then add

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			entries in their notebooks including a drawing of a cell. They add a few more cards to their card sort to include cells. An article, "The Human Biome," is the basis for the reading and responding activity in which students discuss and annotate the article. After viewing another short video, students are introduced to a case study on fecal transplant research for further exploration of the interactions of microorganisms and the human body. After more notebook entries, students read about a scientist who works with antibiotics and the human body. This prepares the students to begin evaluating evidence cards, discussing claims, and preparing for a science seminar. They analyze scientific data from experiments and prepare to address the problem that was introduced at the start of the unit using the Reasoning Tool to help write their final arguments. Here, students engage in scientific argumentation to refute or support the claims. In the Force and Motion Engineering Internship Unit, students are tasked with finding a solution to dropping supplies to disaster areas that cannot be accessed through the roads. In Days 2 and 3, students investigate designs by creating a system to drop eggs without breaking them. In Days 4 and 5, students analyze designs that already exist for dropping supplies to disaster areas. In Days 6 through 10, students choose the

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			optimal design and write a proposal plan for their design.
	4d) Materials provide a coherent sequence of authentic science sources that build scientific **vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	The materials provide a coherent sequence of authentic science sources that build scientific vocabulary and knowledge over the course of study. Vocabulary is addressed as needed, but only after students have first had the opportunity to build conceptual understanding of the term. Each unit has a multi-language glossary of vocabulary terms associated with the concepts. Printable copies are available. Vocabulary terms are introduced as needed and referred back to throughout the unit to reinforce understanding and usage of the terms. In the Population and Resources Unit, students are introduced to vocabulary as words are used within the unit. For example, in Chapter 1, Lesson 1.2, Teacher Led Discussion, students are introduced to the terms “ecosystem” and “population” after they have seen the words and heard them multiple times. Students use context clues to discover what they think the words mean and are guided to look the words up in the glossary provided for them digitally. In the Force and Motion Unit, Chapter 1, Lesson 1.3, students are introduced to the terms “force” and “exert” after concepts are developed. Students first explore the Force and Motion Simulation and then discuss what they observed with a partner. Students are then placed in large

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			groups to complete a jigsaw activity. Finally, students are introduced to the terms and key concept about velocity for the lesson.
Section II: Additional Criteria of Superior Quality			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the the Louisiana Student Standards for Math. ☒ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The lessons within and across each unit are organized to support learning through a natural progression. Students engage with and build understanding of the three dimensions of the standards at increasing levels of complexity and sophistication and engage in a coherent progression of learning that is coordinated over time, clear and organized. This supports student mastery of the Performance Expectations and prevents misunderstanding. For example, in the Light Waves Unit, the "Progress Build" section of planning includes an explanation of progression throughout the unit. It shows progress from prior knowledge and misconceptions to three levels of knowledge the students are expected to gain by the end of the unit. This is where the key concepts are shown to build and connect. For example, in the Populations and Resources Unit, students learn in a natural progression throughout the chapters until they apply their knowledge to a new topic in the final chapter. In Chapter 1, Stability and Change in Populations, students investigate a simulation model that they use throughout the unit to investigate the

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			different things that can affect the growth and reproduction of a population. Students use the simulation to demonstrate how a population can be considered stable. In Chapter 2, Energy and Changes to Populations, students use the simulation to investigate how the energy within the population can be passed from organism to organism within a food chain or web. Students also apply their knowledge to the anchoring phenomenon, moon jellies. In Chapter 3, Indirect Effects in Ecosystems, students learn about how different things such as resources or a decrease in a competing organism can indirectly affect a population growth. Students use the simulation and research given to develop an explanation as to why the anchoring phenomenon, explosion in moon jellies, occurred. Finally, in Chapter 4, Science Seminar, students apply their knowledge of population and resources to a new topic, the decrease in orange-bellied parrot populations. Students also build knowledge about how to communicate in a science setting allowing them to effectively meet multiple PEs in the year. In the Microbiome Unit, students learn about scientific argumentation as part of the units, not as a separate entity. They later build on this knowledge with units like the Sun, Earth, and Moon Unit, which ends with a science seminar in Chapter 4.

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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 Louisiana Student Standards for Mathematics (LSSM) for Grade 6. Students regularly are called to 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 Microbiome Unit, students use math skills to represent real world size through a scale tool simulation to view microscopic cells and even go as small as an electron. Students investigate the concept of scale in Chapter 1: Microorganisms On and In the Human Body lesson. Students use the actual metric system measurements to understand how small microorganisms can be; however, students do not have to perform operations with numbers expressed in scientific notation which is an 8th grade skill (8.EE.A.4). In the Magnetic Field Unit, Chapter 2, Lesson 2.3, students create charts of the relationship between magnetic force and potential energy in a grade level appropriate way. The comparison chart format makes it easy for 6th graders to grasp the concept that they are connected. In the Light Waves Unit, students use ratio reasoning and proportional relationships (LSSM 6.RP.A.2, 6.RP.A.3) to illustrate and explain the

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			relationship between wavelength and intensity and speed.
6. SCAFFOLDING AND SUPPORT: Materials provide teachers with guidance to build their own knowledge and to give all students extensive opportunities and support to explore key concepts using multiple, varied experiences to build scientific thinking. ☒ Yes ☐ No	**Required** **6a)** There are separate **teacher support** materials including: scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials provided. Support materials include, within each unit, Planning for the Unit and Teacher References. Planning for the Unit has several tabs that include: Unit Overview (describes what is included in the unit, why students are learning about the unit, and how the teacher will instruct the students), Unit Map (shows the teacher what the students will figure out and how they figure it out for each chapter), Progression Build (describes the way students' explanatory understanding grows throughout the unit), Getting Ready to Teach (gives step-by-step instructions of how to prepare for the unit), Materials and Preparation (lists materials needed for the entire unit along with kits to purchase if that route is needed), Science Background (provides teacher background knowledge, possible misconceptions or preconception knowledge from students, and pedagogical considerations), and Standards at a Glance (list of Performance Expectations (PE), Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), Crosscutting Concepts (CCCs), and English Language Arts and Mathematics standards). Teacher References has several tabs that include: Lesson Overview Compilation (briefly describes each chapter and lesson's overall questions),

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Standards and Goals (instead of a simple list of the standards addressed, standards are written out in full length and even noted in which other Units they are covered), 3-D Statements (breaks down each chapter and lesson through color coding the overview with three dimensional aspect), Assessment System (provides a table to explain the assessment type, where it is located within the unit, and DCIs covered), Embedded Formative Assessments (explains the location of formative assessments that help a teacher monitor and support student progression), Articles in This Unit (briefly describes the article, when students are introduced to the articles and explains what students learn from the article), Apps in This Unit (notifies teacher of any needed applications students will use throughout the unit), and FlexExtensions in This Unit (if included in the unit, teachers are informed about the information the FlexExtension contains and where it is located within the unit). Support materials within each lesson include: Digital Resources (lists all needed resources for that particular lesson), Overview (describes step by step for the lesson, includes time for each step, and what students will learn), Materials & Preparation (what should be on classroom walls, materials for each class, individual students, and digital tools, and even gives

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			teachers a Preparation list of things to do before, during, and after class), Differentiation (breaks down support and potential challenges for both Diverse Learners and Students Who Need More Support), Standards (has a color coded 3-D Statement along with where SEPs, DCIs, and CCCs are covered within the lesson), Vocabulary (lists vocabulary words introduced in the lesson), and Unplugged? (lets the teacher know if any items are available offline for students with limited internet access).
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. In each lesson, under the Differentiation section on the Lesson Brief Tab, teachers are given support and potential challenges that might arise for both English Learners and students who may need more support. Each unit overview also includes a Phenomenon Relevance Note that includes alternatives, as well as suggestions for modifying the anchoring phenomenon to make it more accessible and/or locally and culturally relevant for students if needed. For each of the reading articles associated with the lessons of the units, a reader option is available. There is an annotation option for the articles and a vocabulary identification option in an alternate language in each article. In Populations and Resources Unit, Chapter 1, Lesson 1.2,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			teacher guidance identifies a potential challenge of the lesson, the interpretation of visuals. It goes on further to explain that while students are using the simulation, they might struggle with working the different aspects within it so extra support might be required while conducting the simulations. For the English Learners within this same unit and lesson, the differentiation discusses ways to support these learners through planning ahead of time and encouraging them to express in their own language as needed. In the Magnetic Fields Unit, Chapter 2, Lesson 2.1, teacher guidance identifies the potential challenge of the lesson, reading focus, and recommends that students should read in pairs to help break up the duties of reading strenuous text. For Students Who Need More Support, the teacher is instructed to create a positive environment by setting goals that all students follow. The guidance suggests that while students read, they record at least one question about the text and then complete one summary. In the Matter and Energy in Ecosystems Unit, Chapter 1, Lesson 1.3, guidance for specific differentiation strategies for English Learners is provided and includes the suggestion for extended teacher modeling with pairs or small groups. Specifically, the guidance suggests that before students read Sunlight and Life, the teacher should choose a section

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			from the article to read aloud with a small group of English Learners and model what to do when they do not understand some part of the text. The guidance also suggests that the teacher model how to notice a break in understanding, reread sections, and then identify an idea, confusing word, or phrase that they understand more clearly. Additionally, every lesson includes the digital glossary in the Digital Resources with definitions in Spanish for primary Spanish speakers.
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. A full teacher's guide is available online and for download and print. Each unit contains an Investigation Notebook which contains the materials needed for the entire unit. The Investigation Notebook is available either digitally or through a package kit by the vendor. Each unit incorporates scientific articles digitally through the Article Complication. Students have access to student apps and text through digital platforms. Prepared kits can be ordered for each unit through the vendor. In the Earth, Moon, and Sun Unit, Materials and Preparation section, a chart includes all the items provided in the Earth, Moon, and Sun Kit that are needed to present the entire unit five times for a class of 40 students. Some printed materials are included with the kit such as Moon Phases Paper Model Templates and Classroom

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Wall Materials. An additional table is provided that lists all of the consumable materials that might need to be purchased outside of the vendor for all classes to use. All needed materials for each unit and lesson are located under the Materials and Preparation Section. For example, in the Magnetic Fields Unit, Chapter 1, Lesson 1.2, under the Materials & Preparation Section, guidance is provided for what should be posted on the classroom walls for students to see. These materials are available for print, such as Vocabulary cards, Chapter Questions, and Key Concepts. This section also includes a list of what each class should have a set of, what each pair of students should have a set of, what each individual student should have a set of, and the digital tools students will be using within the lesson. All teacher provided items are denoted with an asterisk.
	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 Guidelines for Science Investigation are provided for every student within their Investigation Notebook. This includes guidelines such as following instructions, protecting eyes and hands, and telling the teacher if they have allergies. Additional safety guidelines, procedures, and equipment are added, as needed, depending on the investigation.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			For example, the Force and Motion Engineering Internship Unit, Chapter 1, Lesson 1.2 includes a yellow safety note at the top of the Teacher: Egg Drop Challenge instructions. The safety note instructs students and teachers on the risk of handling raw eggs, clearing a space for dropping eggs free of students' paths, and following all school district guidelines on disposal of egg waste. These additional safety notes are located in the digital online interactive lesson.
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. There are 125 instructional days of content with no added FlexExtensions or Louisiana Companion Lessons. Eighteen more days can be added with the accompaniment of the Louisiana Companion Lessons and FlexExtension Lessons bringing the total instructional days to 143. Each lesson within the unit is broken down into 45 minute lessons. For example, in the Light Waves Unit, Chapter 1, Lesson 1.2, a timed schedule is provided under the Overview Lesson at a Glance. Minutes are provided for each activity including the Warm-Up (5 minutes), “Interview with a Spectroscopist” (10 minutes), Activity 2 “Skin Cancer in Australia” (10 minutes), and Activity 3 “Evidence of Energy from Light” (20 minutes), totaling 45 minutes. The Louisiana Companion Lessons also include a time frame for each lesson. For example, the Louisiana Companion lesson for

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			Populations and Resources Unit, Lesson 1: Protecting Our Natural Resources, provides a recommended placement for the lesson. Although the lesson is not broken down into time allotments for each activity, the suggestion time frame of 55 minutes to complete this lesson is provided.
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. All of the assessments for the unit are located in the Teacher References section under the sub header Assessment System and Embedded Formative Assessments section of the unit home page. Under these tabs, descriptions, explanations, and tables with locations for assessments are provided. Formative assessments, such as Pre-Unit Assessments, On-the-Fly Assessments, Self-Assessments, Investigation Assessments, and Critical Juncture Assessments are listed and described in this section. End-of-Chapter Modeling and Arguments and Rubrics are provided as needed for each unit. It is suggested that some of these formative assessments (Pre-Unit Assessments, On-the-Fly Assessments, and Self-Assessments) should not be graded, but used for data on student progression. Summative assessments, such as End-of-Unit Assessments, End-of-Unit Performance, and Investigative Assessments, are also

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			listed within the Assessment System section. The End-of-Unit Assessments include multiple choice questions with written responses and are similar to the Pre-Unit Assessments students take at the beginning of every unit. In some units, an additional End-of-Unit Performance: Science Seminars can be found for summative assessments. For example, in the Matter and Energy in Ecosystems Unit, under the Assessment System, the assessment table lists which assessments the students will take during the activities. In Chapter 1, Lesson 1.1, Activities 1-3, the students complete a Pre-Unit Assessment consisting of multiple-choice and written-response questions. In Chapter 1, Lesson 1.6, Activity 4, students complete two different assessments: On-the-Fly Assessment and an End-of-Chapter Modeling titled 3-D Performance Task: Model for the Econauts. In the Populations and Resources Unit, Chapter 4, students engage in a multicomponent performance task that requires students to use several SEPs (Analyzing and Interpreting Data, Constructing Explanations, Engaging in Argument from Evidence, and Obtaining, Evaluating, and Communicating Information) to construct a written scientific argument. A rubric for the students' responses is provided. However, the summative assessments do not give a very wide range of questions that students might see on an end of the year state test.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	Required **8b) Assessment** items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on integration of the three dimensions. Under the Assessment System tab of the Teacher Reference section in the unit home page, a table is provided that breaks down the three dimensions within each formative and summative assessment. The only unit that does not include this table is the Microbiome Unit; however, formative assessments are embedded in the chapter that integrate the three dimensions. For example, in the Microbiome Unit, a formative assessment opportunity is evidenced in the articles with checkpoint questions and annotations highlighting the CCC Scale, Proportion, Quantity and the DCI Structure and Function. In the application phase after the readings, students engage in scientific argument where the SEPs Analyzing and Interpreting Data, Engaging in Argument from Evidence and Obtaining, Evaluating and Communicating Information are integrated. The summative End-of-Unit written response assesses the CCC Scale, Proportion, Quantity; the DCI Structure and Function; and the SEP Constructing Explanations and Designing Solutions. In the Force and Motion Unit, Chapter 2, Lesson 2.1, Activity 2, students complete a 3D Performance Task: Planning and Conducting an Investigation, which is labeled as an Investigation Assessment. The task incorporates the DCIs MS.PS2A.b and MS.PS2A.c, the SEPs Planning and

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			Carrying Out Investigations, Analyzing and Interpreting Data, and Using Mathematics and Computational Thinking, and the CCC Cause and Effect. Part 1 includes the question, "If the same strength force is exerted on two objects, why might they be affected differently?" Students then answer various questions with written responses to the following questions: "Think about what you already know. Why might two objects be affected differently if the same strength force is exerted on them? Plan an investigation to test your ideas. What will you change (the independent variable) in each test? What will you observe (the dependent variable) as a result of that change? What tools do you need to measure results? What will you keep the same (control) in every test? How many tests should you conduct for each object? Why?" In Part 2, students engage in the investigation and create a data table to record the results. Students then answer the following questions: "Analyze your data. What do you notice? Why might two objects be affected differently if the same strength force is exerted on them?" The assessment includes a rubric for DCIs, CCCs, and SEPs that are being addressed within this assessment. Possible student responses are provided for teachers to compare student response to track their progression of learning.

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. In each unit, rubrics, possible student responses, and look-fors are provided for teachers to correctly analyze student responses and models. For example, in the Earth, Moon, and Sun Unit, Chapter 2, Lesson 2.7, Reflection Questions, students complete a formative self-assessment about the key concepts they have learned up to this point in the unit and reflect on additional questions they might have about the Earth, Moon, and Sun system. Assessment guidance for how to use a self-assessment is provided and is located in the Teacher Support tab of the activity which states to use this assessment for "insight into student thinking thus far in the unit." In the Light Waves Unit, the End-of-Unit Assessment rubric has a Progress Build to identify the rate of growth. It includes a science content evaluation chart in order to determine increased understanding from the beginning of the unit to the end as aligned to the standards. The questions in the assessment and the rubric used to evaluate them are reflective of the Unit Performance Expectations. In the Light Waves Unit, Chapter 4, Lesson 4.4, End-of-Unit Assessment, students respond to the following prompt: "Tyrel is learning about a certain kind of metal used to make satellites. He learns that infrared light is

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			absorbed by the metal, X-ray light is transmitted through the metal, and visible light is reflected off the metal. Tyrel wonders if the metal will get warm if he shines the light on it. Can light cause the metal to get warm? Why or why not? Does it matter what type of light shines on the metal?" A scoring guide is provided outlining several ways to assess student understanding. One part of the scoring guide includes a Science Content Rubric that shows possible student responses at each level of the Progress Build. The levels include: "Level 1: The student indicates that light carries energy that can cause materials to change; Level 2: The student demonstrates an understanding of Level 1 and explains that materials can only absorb energy from some types of light and not others; and Level 3: The student demonstrates an understanding of Levels 1 and 2 and explains that materials can only take in energy from types of light that are absorbed; types of light that are reflected or transmitted do not change a material." The scoring guide also includes a Crosscutting Concept Rubric that assesses student understanding of the CCC Energy and Matter. A score of 0 is assigned to students that do "not show understanding that the movement of energy can be tracked by observing the changes that energy causes to matter." A score of 1 is assigned to a student that "describes transfer of energy into a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			material (e.g., energy from light being absorbed by the metal)" OR "describes energy causing a change to a material (e.g., energy causes the metal to get warm)." A score of 2 is assigned to a student that "describes transfer of energy into a material (e.g., energy from light being absorbed by the metal) AND "describes energy causing a change to a material (e.g., energy causes the metal to get warm)."
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 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 provides purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon.

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	3. Alignment & Accuracy	**Yes**	The majority 68% (13 out of 19) of the 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. No evidence of incorrect or out of date science explanations could be found. Instructional materials spend minimal time on content outside of the 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. 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. Within each module, students are asked to produce and revise models of the anchoring phenomenon. Across the materials, students are regularly engaged in a variety of tasks, such as creating models, solving problems, explaining phenomena, and drawing conclusions from investigations. 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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			understanding of the term. Each unit has a multi-language glossary of vocabulary terms associated with the concepts. Students are encouraged to refer back to it as needed. Printable copies are available.
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. This supports student mastery of the Performance Expectations and prevents misunderstanding. Students apply mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills that go beyond the Louisiana Student Standards for Mathematics for Grade 6. Students regularly are called to apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning.
	6. Scaffolding and Support	**Yes**	There are separate teacher support materials provided. Appropriate suggestions and materials are provided for differentiated instruction, supporting

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. 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. Scoring guidelines and rubrics align to performance expectations and incorporate criteria that are specific, observable, and measurable. In each unit, rubrics, possible student response, and what to look-fors are provided for teachers to correctly analyze student responses and models.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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: **Amplify Science Louisiana** Grade/Course: **7**

Publisher: **Amplify Education, Inc.** Copyright: **2021**

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

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

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

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

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

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

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

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

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Section I: Non-negotiable Criteria of Superior Quality **Materials must meet Non-negotiable Criteria 1 and 2 for the review to continue to Non-negotiable Criteria 3 and 4. Materials must meet all of the Non-negotiable Criteria 1-4 in order for the review to continue to Section II.**			
Non-negotiable **1. THREE-DIMENSIONAL LEARNING:** Students have multiple opportunities throughout each unit to develop an understanding and demonstrate application of the three dimensions. ☒ Yes ☐ No	**Required** **1a)** Materials are designed so that students develop scientific content knowledge and scientific skills through **interacting with the three dimensions** of the science standards. The majority of the materials teach the science and engineering practices (SEP), crosscutting concepts (CCC) and disciplinary core ideas (DCI) separately when necessary but they are most often integrated to support deeper learning.	**Yes**	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. This integration is continuous through the materials, and is consistent with the use of multiple activities in each lesson that build on the knowledge gained from prior lessons, which leads students to a deeper understanding of science through true practice. For example, in Earth's Changing Climate, Chapter 2, Lesson 1, students explore increasingly complex models (SEP, Developing and Using Models) to discover how energy entering and exiting the Earth system impacts the amount of energy absorbed and temperature (DCI, MS.ESS2D.a, MS.ESS3D.a; CCC, Energy and Matter). They investigate how imbalances in this flow of energy will cause a change in the system that would otherwise be dynamic but stable (DCI, MS.ESS2D.a; CCC, Stability and Change, Systems and System Models). In Lesson 1, Activity 2, students use tokens to create a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			physical energy model (SEP, Developing and Using Models) to show energy entering and exiting the Earth system by exploring three different scenarios and reflecting on their observations (DCI, MS.ESS2D.a; CCC, Systems and System Models, Energy and Matter). In Lesson 1, Activity 3, students use a more complex model - a simulator - to conduct three tests to further explore the flow of energy due to different environmental factors: increased carbon dioxide and increased sunlight (DCI, MS.ESS2D.a; SEP, Developing and Using Models; CCC, Stability and Change). They make initial predictions then analyze data from the simulations to conclude that temperature increases when more energy enters the system than exits (SEP, Analyzing and Interpreting Data). In Lesson 1, Activity 4, students reflect on what they have observed in all three models and identify why Earth's climate might have been different in the past (DCI, MS.ESS3D.a; CCC, Stability and Change). In the Traits and Reproduction Unit, students engage with models, construct explanations, and argue from evidence to explore the question "Why do Darwin's bark spider offspring have different silk flexibility traits even though they have the same parents?" Students begin their investigation of variation in traits of spider silk in Chapter 1 by obtaining evidence from digital and physical models

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			which is integrated with information from active reading of scientific texts to construct visual models and explanations of how the structures at the molecular scale of protein molecules produced in cells function to cause different traits at the macroscale (DCI, MS.LS1A.c; CCC, Structure and Function; Scale, Proportion, and Quantity). In Chapter 2, students investigate by using physical and digital models (SEP, Developing and Using Models) and by gathering evidence from science texts in order to explain (SEP, Constructing Explanations and Designing Solutions) what causes the Darwin's bark spider offspring to make different silk proteins (DCI, MS.LS3B.a, MS.LS1A.c; CCC, Cause and Effect). Students construct visual models to show how gene variations affect the protein types that are made, which results in different traits, such as variation in spider silk flexibility (DCI, MS.LS3B.a, MS.LS1A.c; CCC, Structure and Function). In Chapter 3, Lesson 6, students complete an explanation of the anchor phenomenon where they explain claims using a reasoning tool that incorporates information students gathered during investigations in Chapters 1 and 2 and write about spider variation (DCI, MS.LS3B.a, MS.LS1A.c; SEP, Engaging in Argument from Evidence; CCC, Structure and Function). Students explain Cause and Effect (CCC) through a simulation on

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			spider breeding as they examine how traits are passed on through parents and offspring (DCI, MS.LS3A.d). In the Metabolism Unit, Chapter 1, students assume the role of a medical student and theorize why their patient could be feeling so tired. They explore a simulation to make connections between what the body takes in and its healthy functioning (DCI, MS.LS1A.c; SEP, Developing and Using Models), make initial claims and engage with a tool for evaluating evidence that they will use throughout the unit (SEP, Engaging in Argument from Evidence). In Chapter 2, students make connections between macroscale and microscale processes (DCI, MS.LS1A.c; CCC, Scale, Proportion, and Quantity, Systems and System Models) in the human body through use of physical and digital models/simulations (SEP, Developing and Using Models), close reading of scientific texts, and conducting investigations (SEP, Planning and Carrying Out Investigations). In Chapter 3, students construct explanations (SEP, Constructing Explanations and Designing Solutions) to show how body systems work together (DCI, MS.LS1A.c, MS.LS1C.b; CCC, Systems and System Models) to give body cells the necessary molecules needed for cellular respiration, cell growth and repair. Finally, in Chapter 4, students apply their learning about body systems, metabolism, and cellular respiration to a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			new phenomenon as they explain how an elite cyclist went from placing 35th to placing 1st in a competitive bike race in the span of just one year. Students gather evidence and examine data on effects of the cyclist's pre-race meals on his metabolism (SEP, Analyzing and Interpreting Data) to determine if a change in diet could explain his improved performance (CCC, Energy and Matter), then use evidence to explain the athlete's improved performance of an athlete (SEP, Engaging in Argument from Evidence) in a culminating Science Seminar.
Non-negotiable **2. PHENOMENON-BASED INSTRUCTION:** Explaining phenomenon and designing solutions drive student learning. ☒ Yes ☐ No	**Required** **2a) Observing and explaining phenomena** and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time.	**Yes**	Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning throughout the materials. Students are given a job as scientists in each unit's anchoring phenomena and are tasked with finding a solution or explaining a problem. This drives instruction by giving students purpose through the whole unit, providing an authentic investigation experience leading to a coherent learning experience. Each subsequent chapter in the unit has an investigative phenomena students work through to guide their learning. Each lesson is connected to the one before as students incrementally gain knowledge about the anchor phenomenon through key concepts developed throughout the lessons. Students generate initial explanations

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			about the anchor phenomenon at the beginning of each unit and refine their ideas as they gain more knowledge throughout the unit. In the Weather Pattern Unit, students assume the role of a forensic meteorologist and must determine the reason for the unusual severe rainstorms in Galestown in recent years. In Chapter 1, Lesson 2 students explore possible explanations as to why the rainstorms in Galetown are more severe than they used to be. Students are introduced to the unit claims: whether the new lake, warmer temperatures, or stronger than normal wind contribute to the higher amounts of rain that the town is experiencing. Students then begin familiarizing themselves with the simulation that they will use to gather data and investigate the relationship between the amount of surface water and the amount of water vapor in the air. Students develop an understanding in subsequent lessons of the role condensation plays in weather. In Lesson 6, students discuss their ideas about what causes rain storms in Galestown and create visual models to illustrate how increased surface water impacts the amount of rainfall in a given area. In Chapter 2, students learn how warmer temperatures in Galetown could have affected the amount of rain in recent rainstorms. In Lesson 3, students simulate a large rainstorm to identify proportional

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			relationships between energy transferred, the height of the parcel in the troposphere, and the amount of rain. This data is then analyzed and used in Lesson 4 to construct models to relate this to the severe rain storms in Galestown. In Chapter 3, Lessons 1 and 2, students investigate the impact of wind upon the severity of the rainstorm. This is followed by Lesson 3 where students compare models made throughout the units to engage in scientific argumentation and prepare their final report on the factors that impacted the severity of the recent rainstorms in Galestown. In the Ocean, Atmosphere, and Climate Unit, students take on the role of climatologists to discover how air temperature changes are affecting crops in Christchurch, New Zealand during El Niño years. In Chapter 1, Lessons 2 and 3, students use a simulation to investigate how incoming solar energy is transferred to the air to influence temperature around the world. They use world maps to create visual models explaining the relationship between latitude and incoming solar radiation. In Lesson 4, students use simulations and hands-on activities to explain how ocean currents can transport energy and influence temperatures around the world. In Chapter 2, Lesson 4, students apply the knowledge they have obtained to create models and scientific explanations about how ocean currents

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			affect the air temperature of Christchurch. In Chapter 3, Lesson 4, students use models to explain the change in air temperature in Christchurch during regular and El Niño years using evidence they have obtained through various investigations throughout the unit. In the Metabolism Unit, students take on the role of medical students in a hospital and are tasked with diagnosing a patient, Elisa, who feels tired all of the time. Each chapter includes a question to determine what is wrong with the patient, and then students apply their learning in a new context at the end of the unit. As students investigate in each chapter, they make connections between macro-level experiences of the body and the micro-level processes that make the body function. Students incrementally gain knowledge about how cells in the body need molecules form outside to function, how body systems work together to deliver molecules from food and air to the cells, and how cells use these molecules to release energy for the body to function. In Chapter 1, students determine “Why does Elisa feel tired all of the time?” Students develop claims about Elisa and use these claims to investigate further. Students use the Metabolism Simulation and the Metabolism Modeling Tool, and read an article to learn what the body needs to function and which molecules cells need to function. Students

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			revisit and revise their initial claims based on evidence gathered and determine that Elisa is tired because her cells are not getting the molecules they need. In Chapter 2, students determine "What is happening in Elisa's body that could be preventing molecules from getting to her cells?" Students learn about several medical conditions and engage in several investigations to learn about how molecules from food and air get to the cells in the body and how having a medical condition can affect the delivery of molecules to cells in the body. They engage with the Metabolism Simulation, create a Classroom Body Systems Model, and read about different medical conditions. Students use the evidence gathered and knowledge built to write an argument to support a diagnosis of diabetes for Elisa. In Chapter 3, students determine "How do molecules in the cells of the body release energy?" Students consider Elisa's diagnosis of diabetes and connect it to her tiredness to further investigate what molecules in cells have to do with energy levels. Students use the Metabolism Simulation, engage in hands-on observations, and read an article to understand which molecules cells need to release energy, how oxygen and glucose molecules release energy in the cells, and what can happen in the cell as a result of energy released through cellular respiration. As students build knowledge

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			about cellular respiration and how cells need both glucose and oxygen to release energy, they determine that Elisa feels tired because of her low glucose levels. Finally in Chapter 4, students apply what they have learned over the course of the unit and participate in a scientific seminar. Students consider cellular respiration in the context of a high-performance athlete, read an article about blood doping, and answer the question, "How did the athlete increase his cellular respiration and improve his performance?"
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 of the Louisiana Student Standards for Science are incorporated to the full depth of the standards. LSSM 7-MS-LS1-6 is only partially addressed in the Louisiana Companion Student Booklet. Additionally, DCI, MS.L2C.a is only partially addressed in the core materials.
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	All reviewed content is accurate, up-to-date and aligned with the most current and widely accepted explanations. Incorrect or out-of-date science explanations were not evidenced. The content materials in the units are up to date and relevant to the standards.
	3c) In any one grade or course, instructional materials spend **minimal time on content outside** of the course, grade, or grade-band.	**Yes**	Instructional materials spend minimal time on content outside of the grade, or grade-band. Units sometimes incorporate standards within the 6-8 grade band that fall outside Grade 7 LSSS in order to maintain coherence from the students' perspective in explaining the

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			phenomenon; however, minimal time is spent off grade level. Because these additional standards are not taught in isolation, but alongside the Grade 7 LSSS, they do not interfere with development of deep knowledge of grade level content. For example, the Traits and Reproduction Unit addresses LSSS 7-MS-LS1-3, 7-MS-LS3-2, and 7-MS-LS4-5 alongside the additional LSSS 6-MS-LS1-2, 8-MS-LS1-4, 8-MS-LS1-5, and 8-MS-LS3-1. The Earth's Changing Climate Unit addresses LSSS 6-MS-ESS3-4 and the Ocean/Atmosphere/Climate Unit addresses LSSS 8-MS-ESS2-3.
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 Earth's Changing Climate Unit, students begin by watching a video where an ice and climate researcher talks about his work and its relationship to a warming climate and sea-level rise. Students observe measurement tools like GPS used to collect data and the researcher and his team analyzing data of satellite images. Then, students utilize an evidence gradient to analyze line graphs of sea ice data in pairs and as a class while discussing the terms "trends" and "fluctuations." In the next lesson,

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			students utilize a simulation similar to those used by climatologists to draw conclusions about why ice is melting on Earth's surface. Students then gather evidence by manipulating a simulation and by reading a scientific text about a hole in the ozone layer. In Chapter 3, students explore a real-world issue: the increased levels of carbon dioxide and methane in the atmosphere since 1880. Using a simulator, students explore how carbon dioxide and methane levels are affected by human activities. They analyze the data produced during the simulation and evaluate the evidence to determine which evidence is the strongest to explain the increase in carbon dioxide and methane gasses. Later, students design solutions to reduce climate change by using the concepts of stability and change in the challenge to keep temperatures stable in the simulator activity. Throughout most units, digital simulations are used to manipulate models and analyze data. For example, in the Traits and Reproduction Unit, students interact with a simulation that shows three different views of spider reproduction within a population to see the spider's DNA, cell structure and specific information about the spider like web fiber strength and to cause mutations and manipulate the DNA of a particular spider to see the effects on the spider. In addition to simulation, students

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			are also exposed to authentic data and the language used by scientists through articles in each unit. For example, in the Metabolic Engineering Unit students read the "Ingredient Information" article on Day 2 which includes ingredient images and a data table that lists the protein content, carbohydrate content, and glycemic index for each ingredient. Students use the information from the article to learn about what specific nutrients can be found within the food bar.
	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. In several of the units, students engage in a Science Seminar, which gives students an authentic context for applying what they have learned as they engage in a group discussion to make sense of evidence and debate which claims are best supported. For example, in the Ocean, Atmosphere, and Climate Unit, Chapter 4, Lesson 3, students use what they have learned about how ocean currents and prevailing winds affect air temperature to write a convincing claim supported by evidence. Their final written arguments are three-dimensional performance assessments. Students participate in the Science Seminar where they apply what they have learned about

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			ocean currents and air temperature to defend their claims. In the Traits and Reproduction Unit, Chapter 4, Lesson 1, students collect evidence to support why one member of the family is able to run long distances when the rest of the family cannot. Students look at the genetic makeup of this particular family member and compare this to the other family members to document the differences. In Lesson 2, students engage in a scientific argument where they use evidence collected to support their claim of how one family member acquired this special trait that allows them to run for a long distance. In the Metabolic Engineering Internship Unit, students are asked to engineer a solution for a healthy nutritional bar that can be distributed during a natural disaster to those people without access to healthy nutritional food. On days 8 and 9, students create a written (Day 8) and oral (Day 9) proposal for their newly created healthy nutritional bar. Students then get to use real ingredients and bake the bars they have created. In the Louisiana Companion document, students read "How to Make a Poisonous Cabbage." They make connections to another similar situation then discuss the pros and cons of genetic engineering.
	Required **4c)** There is **variability** in the tasks that students are required to execute. For example, students are asked to	**Yes**	There is variability in the tasks that students are required to execute. Within each module, students are asked to

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	produce solutions to problems, models of phenomena, explanations of theory development, and conclusions from investigations.		produce and revise models of the anchoring phenomenon. Across the materials, students are regularly engaged in a variety of tasks, such as manipulating simulations, creating digital models, and designing solutions. In the Metabolic Engineering Unit, students design a health bar to meet the metabolic needs of rescue workers and patients during a natural disaster. On Day 1, students acclimate to the project by discussing the research, design, and proposal phases and the project criteria. On Day 2, students research what ingredients in a food make it nutritional and what part of the human body these ingredients would impact. In addition to Day 2, in the Flextension: Taste-Testing Ingredients activity, students conduct a hands-on activity of researching nine different popular health food bar ingredients. Students blindly taste each ingredient to see which is most appealing. On Day 3, students learn about the targeted population that would need a healthy nutritional food bar. On Days 4-6, students create a design for what ingredients they would like to implement into their food bar by discussing trade-offs, analyzing designs, and incorporating feedback. On Days 7-9, students develop their proposals to present their healthy nutritional food bar. In the Weather Patterns Unit, Chapter 2, students illustrate the temperature in the

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			troposphere by labeling a model, engage in active reading with the article "Disaster in California," work in the Weather Patterns Simulation to create storms with varying amounts of rain, and explain their thinking using the Modeling Tool. In Chapter 3, students explore wind through a hands-on activity, observe in a video that demonstrates how wind can move vertically, continue to engage with the Weather Patterns Simulation, analyze data, and create a model to deepen their understanding. In the Chemical Reaction Unit, Chapter 4, students complete a science seminar in which they explain what would have made hydrofluoric acid, both orally and in writing.
	4d) Materials provide a coherent sequence of authentic science sources that build scientific **vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**No**	Vocabulary is presented throughout the units as needed, but students are often provided definitions prior to exploration and do not have the opportunity to create meaning for themselves. For example, in the Chemical Reactions Unit, Chapter 1, students are introduced to vocabulary terms before they are provided the opportunity to make sense of the words through a coherent sequence of authentic experiences or scientific sources. In Lesson 2, students are introduced to the term substance as "a type of material, such as water or plastic." Up to this point, students have only seen a picture of two glasses with different colored liquids inside. Students investigate substances through observations after being taught

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			this term in isolation. The same approach is evidenced in the Phase Change Unit, Lesson 2. Students are introduced to the word phase as "a noticeably different form or state of the same substance." Teacher guidance is provided that states, "Explain that in order to discuss phase changes, it is necessary to first understand what the word phase means." In these examples, as well as in other areas of the materials, students are provided definitions before building knowledge about the terms, missing the opportunity to develop meaning of the words in relation to the knowledge being built within the lesson.
Section II: Additional Criteria of Superior Quality			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the the Louisiana Student Standards for Math. ☒ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The lessons within and across each unit are organized to support learning through a natural progression. Students engage with and build understanding of the three dimensions of the standards at increasing levels of complexity and sophistication and engage in a coherent progression of learning that is coordinated over time, clear, and organized. The natural progression of lessons supports student mastery of the Performance Expectations and prevents misunderstanding. The students build knowledge in the content area in a way that builds upon what they learned previously. The "Progress Build" of each unit includes an explanation of progression throughout the unit and how

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			students' explanatory understanding of the unit's focal phenomena develops and deepens over the course of a unit. Additionally, each unit provides a "Resource Coherence Flow Chart" that visually represents the storyline of the unit, showing the coherent flow of questions, evidence, and ideas from each lesson in the unit that support students as they build complex explanations of the unit's anchor phenomenon. The Phase Change Unit, Progress Build consists of three levels of science understanding. In Chapter 1, students learn that when a substance changes phase, the freedom of movement of its molecules has changed. In Chapter 2, students learn that energy transfers cause phase change. Finally, the third level of the Progress Build is achieved in Chapter 3 where students learn that molecular attraction affects the amount of energy transfer required for a phase change. In the Traits and Reproduction Unit, students begin by investigating spider silk. Next students discuss and state claims about how Darwin's bark spiders could have different silk strength. Students then begin collecting evidence of protein differences that influence silk strength. Next students investigate the genetic makeup of these spiders to see how one spider might have inherited silk strength. Finally, students learn about how some genetic differences can influence a population. The units also

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			provide a coherent progression of learning that is coordinated over time. For example, in the Phase Change Unit, Chapter 2, Lesson 2, students build knowledge by using physical and digital models to explore the movement of energy into and out of a substance, thus changing its temperature which is defined as a measure of the average kinetic energy of its molecules. This concept of energy moving into and out of matter is applied in the Ocean, Atmosphere and Climate Unit, Chapter 1, Lesson 2, as students use a simulation and heating experiment to investigate and gather evidence for the transfer of energy to the surrounding air.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's expectations in the Louisiana Student Standards for Mathematics. Preferably, **math connections** are made explicit through clear references to the math standards, specifically in teacher materials.	**Yes**	Students apply mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills that go beyond the Louisiana Student Standards for Mathematics (LSSM) for Grade 7. Students regularly are called to apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning. In the Earth's Changing Climate Unit, students analyze data showing ice decrease and temperature increase over time derived from simulations. They also analyze data showing an increase in carbon dioxide and methane over time. These activities incorporate both Grade 6

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			and 7 LSSM from the Ratios and Proportional Relationships domain. In each of the units, the teacher can find mathematical extensions to help students apply grade level mathematical skills within the unit. These extensions can be found in the Going Further: Mathematical Thinking notes located in the Teacher Support tab of the instructional guide. For example, in the Metabolic Engineering Unit, Day 5, students find a percent of a quantity as a rate per 100 (LSSM 6.RP.A.3) as they determine what fraction of the bar is filled and what percentage is left given the following information: "the bar contains 10% raisins, 15% pumpkin seeds, 20% nonfat milk powder." However, some of the Instructional Suggestions for Going Further provided in the Teacher Support tab include standards outside of the grade level, but are not included in the core instruction. For example, in the Phase Change Unit, LSSM 8.EE.3 and 8.EE.4 are listed within the Unit Guide, but are only addressed in an extension activity found in Chapter 1, Lesson 2, Activity 3. Students are instructed to rewrite the distance from Titan to the Sun in scientific notation, write the distance from Earth to the Sun in scientific notation, and then determine how many times farther Titan is from the sun than Earth is from the Sun. These skills are not introduced until Grade 8, but are not a required part of the lesson.

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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).	**Yes**	There are separate teacher support materials provided. Each unit contains support materials such as Planning for the Unit and Teacher References. Planning for the Unit has several tabs that include Unit Overview (describes what is included in the unit, why students are learning about the unit, and how the teacher will instruct the students); Unit Map (shows the teacher what the students will figure out and how they figure it out for each chapter); Progress Build (describes the way students' understanding grows throughout the unit); Getting Ready to Teach (gives step-by-step instructions of how to prepare for the unit); Materials and Preparation (lists materials needed for the entire unit along with kits to purchase if needed); Science Background (provides teacher background knowledge, possible misconceptions or preconception knowledge from students, and pedagogical considerations); and Standards at a Glance (list of Performance Expectations SEPs, DCIs, CCCs and English Language Arts and Mathematics standards). Each unit also has a section with Teacher References which includes a Lesson Overview Compilation (briefly describes each chapter and lesson's overall questions); Standards and Goals (lists the standards addressed); 3-D Statements (breaks down each chapter and lesson through color coding the overview with a three-dimensional

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			aspect); Assessment System (provides a table to explain the assessment type, where it is located within the unit, and DCIs covered); Embedded Formative Assessments (explains the location of formative assessments that help a teacher monitor and support student progression); Articles in This Unit (briefly describes the article, when students are introduced to the articles and explains what students learn from the article); Apps in This Unit (notifies teacher of any needed applications students will use throughout the unit); and FlexExtensions in This Unit (if included in the unit, teachers are informed about the information the FlexExtension contains and where it is located within the unit). Support materials within each lesson include Digital Resources (lists all needed resources for that particular lesson); Overview (describes step by step for the lesson, includes time for each step, and what students will learn); Materials & Preparation (what should be on classroom walls, materials for each class, individual students, and digital tools, and a preparation list of things to do before, during, and after class); Differentiation (breaks down support and potential challenges for both Diverse Learners and Students Who Need More Support); Standards (has a color coded 3-D Statement along with where SEPs, DCIs, and CCCs are addressed within the

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			lesson); Vocabulary (lists vocabulary words introduced in the lesson); and Unplugged? (informs the teacher if any items are available offline for students with limited internet access).
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. In each lesson, under the Differentiation section on the Lesson Brief Tab, teachers are given support and potential challenges that might arise for both English Learners and students who may need more support. Each unit overview also includes a Phenomenon Relevance Note that includes alternatives, as well as suggestions for modifying the anchoring phenomenon to make it more accessible and/or locally and culturally relevant for students, if needed. For each of the reading articles associated with the lessons of the units, a reader option is available. There is an annotation option for the articles and a vocabulary identification option in an alternate language in each article. Lesson materials also include Equity Checks with specific tips, techniques, and points to consider to support the teacher in recognizing and valuing student resources and promoting equitable participation. Each lesson includes a large multi-language glossary inclusive of several languages. Specific differentiation strategies are given in the

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			teacher's manual before each lesson for students who need more support and more challenge. For example, in the Metabolic Engineering Unit, Day 4 includes the following subsections within the Differentiation section of the Lesson brief: Embedded Supports for Diverse Learners, Potential Challenges in This Lesson, Specific Differentiation Strategies for English Learners, Specific Differentiation Strategies for Students Who Need More Support, and Specific Differentiation Strategies for Students Who Need More Challenge. The Specific Differentiation Strategies for English Learners suggest that teachers encourage these students to write and reflect in their primary language when investigating the specific ingredients and strategic grouping that will allow English learners to engage in discussion slightly above their proficiency level with engaging and supportive partners. In the Traits and Reproduction Unit, Chapter 1, Lesson 2 identifies a potential challenge with discussion in the lesson and suggests that the teacher come up with strategies to help build up confidence in students' oral communication skills. Guidance in this section flags a potential challenge of connecting physical models to the phenomena they represent and offers the suggestion to "create more opportunities for explicitly reflecting on what the different aspects of the model represent."

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			In the Weather Patterns Unit, Chapter 1, Lesson 2, guidance suggests that "English Learners may benefit from additional discussion of prior knowledge about evaporation and condensation. Have pairs or small groups discuss what they have heard about the water cycle and how the cycle could be connected to rain."
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. A full teacher's guide is available online and for download and print. Each unit contains an Investigation Notebook which contains the materials needed for the entire unit. The Investigation Notebook is available either digitally or through a package kit by the vendor. Each unit incorporates scientific articles through the Article Compilation, which is available digitally and as a printable PDF. Students have access to student apps and text through digital platforms. Prepared kits can be ordered for each unit through the vendor. At the beginning of each lesson section there is a "Material and Preparation" section for teachers to review prior to teaching. For example, the Ocean, Atmosphere, and Climate Unit "Materials and Preparation" document notes that this unit includes a kit with materials to present the lessons five times for a class of 40 students. All items included in the kit are listed, with consumable items noted with an asterisk, and any items that the teacher will need

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			to provide are listed separately. The "Preparation at a Glance" provides teachers with an overview of the amount of time it should take the teacher to prepare the materials for each lesson of the Ocean, Atmosphere, and Climate unit, broken down by chapter and lesson. An "Offline Guide" is also provided so that teachers can download all unit and lesson resources for future offline access. Downloadable offline content includes the complete teacher's guide, projections, videos, copy master PDFs, assessment guides, and any other resources used. Lessons and material can be assigned to individual students through Google Classroom. Units are available as hybrid and remote learning options with printable pdf versions.
	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 Guidelines for Science Investigation are provided for every student within their Investigation Notebook. This includes guidelines such as following instructions, protecting eyes and hands, and telling the teacher if they have allergies. Additional safety guidelines, procedures, and equipment are added, as needed, depending on the investigation. For example, in the Metabolic Engineering Unit, Day 2 Flextension: Taste-Testing Ingredients

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			gives a list of materials, preparation, safety notes and instruction guide on how to conduct the investigation. All of this information can be found within the Printable Resources section labeled Flextension Complication. On Day 1 of the unit, students read and complete a Safety Guideline and Safety Agreement as a homework assignment. In the Metabolism Unit, Chapter 3, Lesson 2, students observe a chemical reaction involving calcium chloride, baking soda, and phenol red. A safety note states, "Do not taste or touch the substances in the investigation, do smell substances as a chemist does, and do mix substances only when you are told so. Use safety goggles and gloves as necessary. Calcium chloride and phenol red present irritation risks. Wash exposed areas when finished. If calcium chloride, phenol red, or a mixture of substances gets on skin or clothes, rinse the substance off with water. If a substance gets in eyes, rinse the affected eye(s) with water for 15 minutes."
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. Sufficient time is allowed for exploration, reteaching, and assessments. There are a total of 143 lessons in all units and the engineering internship set on a 40 to 45-minute schedule. The Louisiana Grade 7 Companion Booklet includes eight additional lessons. Instruction Suggestions are embedded throughout the materials for teachers to include in

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			the lessons if time permits. For example, in the Earth's Changing Climate Unit, Chapter 3, Lesson 3, the lesson begins with a 5-minute warm-up where students complete an On-the-Fly Assessment, followed by a 20-minute activity where students complete a second read of "Past Climate Changes on Earth," a 15- minute activity in which students model an increase in temperature due to gases, and then a 5-minute lesson closing in which they revisit a statement from the anticipation guide in order reflect on what has been learned. In the Metabolism Unit, Chapter 3, Lesson 2, Activity 4, an Instructional Suggestion includes an activity that students can engage with if timer permits. During the activity, students use the Metabolism Sim to understand how the "circulatory system plays a role in taking carbon dioxide from the cells and delivering it back to the respiratory system, through which it can be exhaled and removed from the body." The Louisiana Companion Booklet includes additional activities to go along with 5 of the units including: Phase Change, Traits and Reproduction, Weather Patterns, and Earth's Changing Climate. Articles, worksheets, and investigations are included in the booklet.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
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. All of the assessments for the unit are located in the Teacher References section under the sub header Assessment System and Embedded Formative. The Assessment System includes a range of On-the-Fly formative assessments designed to guide teachers as they monitor students' learning progress toward conceptual understanding for both DCIs and CCC and dexterity with targeted SEPs. Each launch unit also includes a three-dimensional performance task in the form of a written scientific argument, which the teacher can evaluate by using the provided rubrics for assessing DCIs, CCCs, and students' developing facility with the SEP of argumentation. Summative assessments, such as End-of-Unit Assessments, End-of-Unit Performance, Science Seminars, and Investigative Assessments, are also included within the Assessment System section as applicable. For example, in the Earth's Changing Climate Unit, Chapter 1, Lesson 1, students complete a Pre-Unit Assessment consisting of nineteen multiple choice questions and two written-response questions. In Lesson 4, Activity 4, students complete an On-the-Fly assessment during a student discussion about atmospheric changes and energy

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			absorption. Students develop explanations about energy, temperature, and atmospheric gases reflecting the work they completed during a simulation activity. Then, in Lesson 5, students engage in a 3D Performance Task in which they use the Earth's Changing Climate Modeling tool to make a diagram that helps answer why the ice on Earth's surface is decreasing and temperatures are increasing. In Chapter 4, Lesson 4, students complete an End-of-Unit Assessment that consists of the same nineteen multiple choice questions and two written response questions that were included on the Pre-Unit Assessment which helps determine students' understanding based on the levels of the Progress Build after instruction. In the Traits and Reproduction Unit, the Assessment System guideline gives the teacher a table that outlines when each assessment is administered, the assessment type, evaluation guidance, and the standards that are addressed with each assessment. For example, in Chapter 2, Lesson 2, Activity 2, Modeling the Role of Genes, students play the role of ribosomes as they build physical models of proteins. After the students build proteins, students engage in discussion in an On-the-Fly Assessment as they reason about genes as instruction for proteins. The teacher is provided notes on what to look for in student responses

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			followed by guidance on what to do next based on student responses. In Chapter 4, students engage in the End-of-Unit Performance task in which students engage in a Science Seminar that integrates SEPs Analyzing and Interpreting Data, Constructing Explanations, Engaging in Argument from Evidence, and Obtaining, Evaluating, and Communicating Evidence. In Lesson 2, students engage in an oral argument with claims about traits and inheritance using what they have learned throughout the chapter about proteins, traits, genes, and how genes are inherited. In Lesson 3, students are then given two arguments and determine which is more convincing. Using the Reasoning Tool, a graphic organizer that prompts students to state a claim, describe the evidence, and explain how the evidence supports the claim, to write a scientific argument.
	Required **8b) Assessment** items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on integration of the three dimensions. Under the Assessment System tab of the Teacher Reference section in the unit home page, a table is provided that breaks down the three dimensions within each formative and summative assessment. The only unit that does not have this table is the Metabolic Engineering Unit because this is a project based learning unit. For example, in the Phase Change Unit, Chapter 3, Lesson 3, Activity 3, students engage in a 3D

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Performance Task as an End-of-Chapter assessment. Students create a model (SEP, Developing and Using Models) showing why the liquid methane in lake on Titan evaporated between 2002 and 2009 and then create a model showing why the liquid methane in the lake did not evaporate before 2007. Students use the model to explain (SEP, Constructing Explanations) what was happening at the molecular level (CCC, Scale and Proportion) when the liquid methane did not change phase in the lake on Titan before 2007 (DCI, MS.PS1A.c, MS1A.d). Students then read the article "Pressure and Temperature" in order to obtain information and then communicate (SEP Obtaining, Evaluating, and Communicating information) how pressure variation affects the temperature at which phase changes occur (DCI, MS.PS1A.f; CCC, energy and matter). In the Ocean, Atmosphere, and Climate Unit, Chapter 2, Lesson 3, Activity 2, students engage in a 3D Performance Task used as an investigation assessment. Students conduct an experiment (SEP, Planning and Carrying Out Investigations) to observe how air temperature changes when hot or cold water is nearby to help explain how ocean currents affect (CCC, Cause and Effect) the air temperature of the locations the currents pass by (DCI MS.ESS2C.b). Evaluation guidance is provided in an Assessment Guide and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Rubrics for DCIs, CCCs, and SEPs. In the Trait and Reproduction Unit, the Assessment System table under the Teacher Resources shows that in Chapter 1, Lesson 5, Activity 3, Sim Investigation: Testing Protein-to-Trait Predictions is used as an On-the-Fly Assessment. During the assessment, students use the Sim (SEP, Developing and Using Models) to investigate how adding proteins affects spiders' traits including silk flexibility and color. Students record observations about the traits and proteins a spider has for silk flexibility and color. They make predictions about whether adding proteins will change the spider's features and then test the prediction in the Sim (SEP, Analyzing and Interpreting Data). Students then record the new trait that is observed (CCC, Structure and Function). The assessment provides the opportunity to "address how a different protein structure will lead to a change in the function of that protein" (DCI, MS.LS1A.c).
	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. The rubrics and scoring guides list the Performance Expectation next to the anticipated answer or the question. The On-the-Fly assessments include "look fors" and "now whats" to show teachers where to guide and when to know students have mastered the concepts. Students are

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			given beginning assessments and critical juncture assessments. Students' responses are given for teachers to compare. There are also rubrics built into the online assessment system. The rubrics for pre- and end-of-unit assessments correspond to a Level of Progress Build. The Assessment System gives a list of possible assessments for each unit and what it will assess in the three dimensions. For example, in the Metabolic Engineering Unit, Day 3, students are given a task to summarize the needs of each test user in preparation for working with the test users in the design of a health food bar. The teacher is given a possible student response on what each test users' needs are. Another example can be found in Day 6, when students are told to actively read and discuss in a feedback letter that shows what the results and goals needed for final iterative testing. The teacher is given a criterion to grade students and prompts to give as feedback on students' writing. In the Weather Patterns Unit, Chapter 2, Lesson 5, Activities 1-3, the Critical Juncture Assessment includes an answer key and scoring guide. Progress Build levels are provided and are aligned to each assessment item. In addition, a scoring guide is provided to help interpret student scores. The guide interprets the student scores according to how many questions the students answered

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			correctly at each level and then provides an over level of understanding demonstrated by the student's performance. Science content rubrics are also provided that help teachers understand the student's level of understanding based on students' written responses. The guide provides both the level of understanding, of 1, 2, or 3, as well as student sample responses at each level. For example, for Writing Response Question #1, students are at Level 1 when "The student indicates that Storm 1 or Storm 3 will have the most rainfall because of greater energy transfer." A possible student response includes "Storm 1 or 3 will have the most rainfall because the air parcels were warmer before those storms than before Storms 2 or 4. Energy flows from warmer air to cooler air, and a warmer parcel will lose more energy to its cooler surrounding air. Therefore, more water vapor inside it will turn into liquid and all as rain." At Level 2, "The student demonstrates an understanding of Level 1 and explains that warm air rises and loses energy to its surrounding air in the troposphere where it gets colder higher up," and at Level 3, "The student demonstrates an understanding of Levels 1 and 2 and explains that wind blowing toward the air parcel can push the air parcel even higher up, causing it to lose more energy." In the Metabolism Unit, Chapter 4, Lesson 4,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			includes an End-of-Unit Assessment Answer Key and Scoring guide that also includes a rubric for CCCs. This portion of the rubric is designed to score the two writing prompts of the assessment. Students can score 0, 1, or 2 depending on their level of understanding the CCC Systems and Systems Models. Descriptions are provided to evaluate student understanding, such as, "Student describes that: One or more specific body systems are part of the larger body system, for example, the digestive system, respiratory system, or circulatory system are systems within the body" for a score of 2.

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 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

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			provides purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon.
	3. Alignment & Accuracy	**Yes**	The majority of the 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. No evidence of incorrect or out of date science explanations could be found. Instructional materials spend minimal time on content outside of the course, grade, or grade-band.
	4. Disciplinary Literacy	**Yes**	Students regularly engage with authentic sources that represent the language and style used and produced by scientists. 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. Within each module, students are asked to produce and revise models of the anchoring phenomenon. Across the materials, students are regularly engaged in a variety of tasks, such as creating models, solving problems, explaining phenomena, and drawing conclusions from investigations. However, vocabulary is presented throughout the units as needed, but students are often provided

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			definitions prior to exploration and do not have the opportunity to create meaning for themselves.
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 Louisiana Student Standards for Mathematics (LSSM) for Grade 8. Students regularly are called to apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning.
	6. Scaffolding and Support	**Yes**	There are separate teacher support materials provided. Appropriate suggestions and materials are minimally provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. Materials help students build an understanding of

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

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			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. Sufficient time is allowed for exploration, reteaching, and assessments.
	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. Scoring guidelines and rubrics align to performance expectations, and incorporate criteria that are specific, observable, and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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: **Amplify Science Louisiana** Grade/Course: **8**

Publisher: **Amplify Education, Inc.** Copyright: **2021**

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

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

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

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

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

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

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

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

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Section I: Non-negotiable Criteria of Superior Quality **Materials must meet Non-negotiable Criteria 1 and 2 for the review to continue to Non-negotiable Criteria 3 and 4. Materials must meet all of the Non-negotiable Criteria 1-4 in order for the review to continue to Section II.**			
Non-negotiable **1. THREE-DIMENSIONAL LEARNING:** Students have multiple opportunities throughout each unit to develop an understanding and demonstrate application of the three dimensions. ☒ Yes ☐ No	**Required** **1a)** Materials are designed so that students develop scientific content knowledge and scientific skills through **interacting with the three dimensions** of the science standards. The majority of the materials teach the science and engineering practices (SEP), crosscutting concepts (CCC) and disciplinary core ideas (DCI) separately when necessary but they are most often integrated to support deeper learning.	**Yes**	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. For example, in the Rock Transformations Unit, Chapter 4, Lesson 1, students examine pictures of rocks on Venus, as well as rocks and rock materials on Earth showing Stability and Change (CCC). As the unit continues, students annotate, discuss, and use an evidence gradient (SEP, Analyzing & Interpreting Data) to evaluate evidence and Engage in Argument from Evidence (SEP) both orally during a Science Seminar and in a culminating written assessment. Students explain how rock processes could be similar to Earth and how energy is moving the matter (DCI, MS.ESS2A.a). In the Geology on Mars Unit, Chapter 1, Lesson 1, students interpret data derived from Earth and from space (SEP, Analyzing & Interpreting Data) in order to determine similarities between the rocky Earth-like planets (DCI, MS.ESS1C.a). Students examine both statistical data and models

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and are provided explicit support for systems thinking and why it is important for scientists (CCC, Systems and System Models). They also analyze sizes of planetary layers such as crust, atmosphere, and surface features and work in teams to investigate the interactions between the four main spheres of Earth (Systems and System Models, CCC). They share their findings and compare them to that of the other three rocky planets. Within the chapter, students explore what planets may have previously had life by investigating evidence of liquid water and Engaging in Argument from Evidence (SEP). In Chapter 3, explicit support for engaging in argument is provided as students make connections to everyday argumentation, explore the way scientists gather information to answer questions, and investigate components of a good scientific argument. Students investigate claims, gather evidence from investigations and models, and evaluate evidence. They explore landforms on the rocky planets to determine if they provide evidence that water once existed on those planets, analyze a diagram of the interaction of earth's systems in the evaporation of a water puddle and provide the missing evidence of how the evaporation may have taken place (SEP, Analyzing and Interpreting Data), and observe a stream table and gather

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			evidence of the erosion of rock to form channels because of flowing water (DCI, MS.ESS2C.e). In the Plate Motion Engineering Internship, Chapter 1, Lesson 2: Modeling a Tsunami Wave, students complete an investigation where they build and use a tsunami tank model to compare a wind-generated wave to a tsunami wave and learn more about how tsunamis form (SEP, Developing and Using Models). Students model different types of waves (wind-driven and tsunami) and record data on the cause of these waves and the resulting effects (CCC, Cause & Effect). The students examine why tsunamis happen in particular places and ways to better monitor them (DCI, MS.ESS3B.a). In Lesson 5, students design, build, and test (SEP, Constructing Explanations & Designing Solutions) different tsunami warning systems (CCC, Systems and System Models). In Lesson 6, students share and discuss feedback on their submitted tsunami warning system designs (SEP, Obtaining, Evaluating, & Communicating Information), and in Lessons 7, 8, and 9, students develop the claim that their selected designs are optimal (DCI, MS.ESS3B.a) and support their claims with evidence gathered from data (SEP, Engaging in Argument from Evidence).

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Non-negotiable **2. PHENOMENON-BASED INSTRUCTION:** Explaining phenomenon and designing solutions drive student learning. ☒ Yes ☐ No	**Required** **2a) Observing and explaining phenomena** and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time.	**Yes**	Observing and explaining phenomena and designing solutions provides purpose and opportunity for students to engage in learning throughout the materials. Students are given a job as scientists in each unit's anchoring phenomena and are tasked with finding a solution or explaining a problem. This drives instruction by giving students purpose through the whole unit, providing an authentic investigation experience leading to a coherent learning experience. Each subsequent chapter in the unit has an investigative phenomena students work through to guide their learning. Each lesson is connected to the one before as students incrementally gain knowledge about the anchor phenomenon through key concepts developed throughout the lessons. Students ask questions throughout the units and refine their ideas as they gain more knowledge. These questions at the beginning of each chapter coincide with the anchor and investigative phenomena, but do not stop students from asking their own thought-provoking questions throughout the activities. In the Plate Motion Unit, students take on the role of geologists as they investigate why fossils of Mesosaurus, a population of extinct reptiles that once lived all together, are now found separated by thousands of kilometers of ocean. This question serves as the anchor phenomenon for the unit and drives

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			student learning on plate motion, plate boundaries, and changes happening on a geologic scale. After investigating what the land is like where Mesosaurus fossils are found in Chapter 1, students then use GPS and historical data to discover how the South American Plate and African Plate moved in Chapter 2. This leads to an investigation of whether the fossils were separated suddenly as a result of one geologic event, or slowly over millions of years. In Chapter 4, students then take what they have learned and apply their knowledge to a new phenomenon, the Jalisco plate boundary, and explain a scientific argument that is ongoing in the real world. The Natural Selection Unit begins with a video about the phenomenon of poisonous newts that have become more poisonous over time. Students take on the role of biologists to investigate what caused the newt population in Oregon State Park to become more poisonous. In Chapter 1, students explore genetic variation in populations over time using a simulation. Throughout the chapter, students use the simulation to make predictions, then test out their predictions about how the populations will change over time, and analyze histogram evidence about the newt population. In Chapter 2, students use a physical model and a simulation to investigate how adaptive traits affect survival and reproduction, and then in

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Chapter 3, they create visual models to communicate their findings as they discover how a mutation created the phenomenon of a poisonous newt. Finally, in Chapter 4, students apply what they have learned to a new question: “What caused the stickleback population to have less armor and become faster?” They engage in argument, discussion, and questioning, and then write final arguments to document their findings. In the Thermal Energy Unit, students take on the role of thermal scientists and work with a fictional school's principal to figure out which heating system is the best. Both systems would use water to heat the school, but they work in different ways. This provides the anchor phenomenon for the unit. Throughout the unit, students build knowledge of the relationship between energy and temperature, which builds understanding needed to select one heating system over the other. Chapter 1 begins with students exploring the movement of molecules and how this determines temperatures as they answer the question, “What is happening when the air in the school gets warmer?” Students investigate the movement of food coloring in warm and cool water and also use a simulation to investigate the relationship between molecular movement and temperature. In Chapter 2, students learn about energy transfer through the use of a simulation, reading

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			an article, using a physical model, and making visual models. Students figure out what causes the air molecules inside the school to speed up, and then apply this to the anchor phenomenon and continue to evaluate the two proposed heating systems. In Chapter 3, students continue to gain knowledge as they investigate energy transfer, make a final model explaining energy transfer, and prepare a written explanation of which heating system is better for the school and why. Chapter 4 provides students with the opportunity to apply what they have learned to a new phenomenon as they investigate water pasteurization and present their findings in a science seminar.
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 of the Louisiana Student Standards for Science (LSSS) are incorporated to the full depth of the standards. The following standards are partially addressed in the Louisiana Grade 8 Companion Student Booklet: LSSS 8-MS-PS1-3, 8-MS-LS1-4, 8-MS-LS1-5, 8-MS-PS1-6, 8-MS-ESS3-3.
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	All reviewed content is accurate, up-to-date, and aligned with the most current and widely accepted explanations with two exceptions. An inconsistency was evidenced in the materials within the Geology on Mars Unit, Chapter 1, in the text "Scale in the Solar System." The text first states that "There are eight planets in our solar system…" However, an illustration is then provided with a caption

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			that states “The planets in our solar system come in a variety of sizes, but they are all much smaller than the sun. To show the sizes of the planets accurately, this illustration shows them much closer together than they really are.” The illustration includes Pluto, indicating Pluto as the ninth planet. Also, the text says Jupiter has at least 63 moons and Saturn has 62, but according to NASA's latest data, Jupiter and Saturn each have 53 confirmed moons; Jupiter also has 26 provisional moons and Saturn has 29 provisional moons.
	3c) In any one grade or course, instructional materials spend **minimal time on content outside** of the course, grade, or grade-band.	**Yes**	Instructional materials spend minimal time on content outside of the grade or grade-band. There are a few instances where the materials address other standards but are briefly referenced mainly to make connections and content is not re-taught. For example, in the Thermal Energy Unit, students have a brief encounter with LSSS 6-MS-PS2-1 in regards to molecules hitting against each other as heat increases their movement, LSSS 7-MS-PS1-4 when generating models to illustrate the movement of molecules when thermal energy is added or subtracted, and LSSS 7-MS-PS3-4 when investigating how changes in kinetic energy are measured by temperature. This brief encounter does not take away from the focus of the unit in which students use the movement of molecules to explain their observations of hot and cold at the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			macroscopic level. In the Geology on Mars Unit, students encounter LSSS 6-MS-ESS1-3 in the article "Scale in the Solar System" as they determine the scale properties of objects in the solar system. Students encounter this standard again in the Rock Transformations Unit as they use statistical data, drawings, photos, and models to compare scale sizes of Earth layers. In the Natural Selection Unit, students briefly encounter LSSS 7-MS-LS2-4 in the FlexExtension activity "Claw Traits Over Generations"; LSSS 7-MS-LS4-4 in Chapter 2, Lessons 1 and 2, when constructing an explanation based upon evidence from the simulation to describe how genetic variations enhance some individual's chances of survival and reproduction; and LSSS 7-MS-LS4-5 in Chapter 3, Lesson 2 when reading the article "How to Make a Venomous Cabbage," which illustrates how humans have genetically altered (synthesized) a plant to resist bugs. These encounters do not take away from addressing grade level content.
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.	**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. Additionally, the Unit Launcher for each unit includes an excerpt from a peer-reviewed scientific

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☒ Yes ☐ No			journal article for students to analyze and discuss within the context of their studies. In the Geology on Mars Unit, students explore how to search for evidence that other planets were once habitable. In Chapter 1, Lesson 2, students use "Google Mars" to explore authentic scientific maps of Mars, and in Lesson 3, students examine an actual question that scientists investigated: a jelly-donut-like object that appeared in the path of the Opportunity rover on the surface of Mars in 2014. In Chapter 3, students evaluate authentic satellite images and Mars rover data to make claims about landforms on different planets and engage in argument based on evidence about what created a channel on Mars. In the Evolutionary History Unit, students investigate a mystery fossil that is based on an actual whale fossil excavated in Pakistan in 2000. In Chapter 2, students actively read different articles, which include photographs of actual species, from the text set "Where Do Species Come From?" and share their findings with their peers. Scientists have traced the speciation of each of the real species given as choices (Galapagos tortoises, polar bears, and flightless ducks). As they gather information from authentic sources, they build knowledge to complete the Vertebrates mode of the Evolutionary History simulation in which students compare the extent of structural changes of species across

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			different lengths of time. In the Natural Selection Unit, students examine a variety of evidence types, including authentic articles, photographs, and models. In Chapter 1, Lessons 3 and 4, students learn about histograms as tools to show how traits vary in a population and use that knowledge to work in a simulation to collect data to build their own histogram. They simulate three fictional populations to make histograms to show those populations traits. Students have to manipulate the traits of the species in the simulation to see how that affects the numbers living, and they go on to make more histograms to explain real life phenomena. In Chapter 4, students analyze authentic evidence, including photographs and data tables, and select evidence to support different claims. They then use the evidence they gathered to engage in a science seminar and write scientific arguments.
	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. Two different units, Plate Motion Engineering Internship and Natural Selection Engineering Internship, engage students by immersing them in the type of work that real engineers do. The "engineering internships" provide students with the opportunity to apply

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			what they have learned in a situation that closely mimics the real world. During these internship units, students engineer solutions to real-world problems and complete a Science Seminar, which allows students to speak and engage in scientific arguments supported by evidence they collected for the subject. In the Evolutionary History Unit, Chapter 4, students evaluate evidence provided by other students on the Tometti Fossil and decide which claim is best. They use evidence to find differences in the fossils discussed, and then participate in a group discussion (Science Seminar) and write a scientific argument to answer the question on the Tometti Fossil. In the Geology on Mars Unit, Chapter 2, students annotate an article about another planetary geologist working with the surface of Venus. They share their annotations with a partner and edit based upon their discussions. Then students use a physical model to gather evidence and test their ideas using the physical model. Students also compare their findings to a video of a flowing lava model to determine if features on planetary surfaces would have been formed by either source. In the Thermal Energy Unit, Chapter 2, students make predictions about the movement of hot and cold water molecules, then investigate the movement of food coloring through hot and cold water. Students use a simulation

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			to gather evidence, read, annotate, and discuss the article "How Air Conditioners Make Cities Hotter," then engage in a scientific argument to choose one of two claims about why molecules change speed. In Chapter 3, students synthesize what they have learned in the form of a written recommendation with an explanation of why the groundwater system will warm the school more.
	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 module, students are asked to produce and revise models of the anchoring phenomenon. Across the materials, students are regularly engaged in a variety of tasks, such as computer simulations, writings, labs, readings, and presentations. For example, in the Thermal Energy Unit, students conduct a hands-on activity showing that food coloring disperses more quickly in warmer water and also model this using a computer simulation in Chapter 1. In Chapter 2, students use a simulation to observe the transfer of kinetic energy and also experience this by using cubes to model how kinetic energy moves between the parts of a system. In Chapter 3, students revisit the cube model from the previous chapter and also read an article and use a simulation to test the proposed heating systems. In Chapter 4, students apply what they have learned to a new situation and construct oral and written

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			arguments to support their claims. These activities help students make sense of the phenomenon for the unit and make a recommendation to the principal regarding the selection of a new heater system for a school as they gather evidence about the molecular nature of temperature and its relationship to kinetic energy. In Thermal Energy: Designing Hot Packs and Cold Packs (from the LA Grade 8 Companion Student Booklet), students conduct a hands-on investigation where they research different substances to reach the highest or lowest temperature possible and record their observations. Students then use their research to design a hot or cold pack and use the engineering design process to test, analyze, and modify their design. Students must develop a written proposal explaining how their design works and why their design is optimal. This activity further helps students make sense of the phenomenon for the unit and make a recommendation regarding selecting a new heater system. In the Natural Selection Unit, Chapter 3, students read and annotate an article set that provides information about mutations, then look at graphs on newt poison levels. This lesson also brings in data from a simulation done earlier in Chapter 2 where students see that individuals with adaptive traits survive longer and reproduce more, passing their adaptive traits on to more individuals in

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			the next generation. Students use a simulation to see which traits are introduced into the population as a result of mutations and which of those mutant traits become more common. Students also write about what they have learned, engage in scientific argumentation, and create a visual model that explains their thinking.
	4d) Materials provide a coherent sequence of authentic science sources that build scientific **vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**No**	Vocabulary is presented throughout the units as needed, but students are often provided definitions prior to exploration and do not have the opportunity to create meaning for themselves. For example, in the Plate Motion Unit, Chapter 1, Lesson 2, the teacher introduces and explains the word paleontologist. Students then watch the video, "Meet a Paleontologist." In the Geology on Mars Unit, Chapter 1, Lesson 1, students are introduced to their role as planetary geologist. Students are directed to think about what a planet needs to support life. The teacher then introduces the word habitable, projects the definition, and reads the word and definition out loud. The teacher then projects the Unit Question on the board, "How can we search for evidence that other planets once were habitable?" In the Rock Formation Unit, Chapter 1, Lesson 2, students make observations of rocks and then are told that rocks are matter. Students are then introduced to the word matter then the teacher displays the word and definition. The same

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			approach to vocabulary is evidenced in the Evolutionary History, Chapter 1, Lesson 4, as students are introduced to the word and definition of descendant species and common ancestor population. Students read these two terms in the lesson prior but do not have the opportunity to make sense of the terms and create meaning in relation to the knowledge gained about shared structures. In these examples, as well as in other areas of the materials, students are provided definitions before building knowledge about the terms, missing the opportunity to develop meaning of the words in relation to the knowledge being built within the lesson.
Section II: Additional Criteria of Superior Quality			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the the Louisiana Student Standards for Math. ☒ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The lessons within and across each unit are organized to support learning through a natural progression. Students engage with and build understanding of the three dimensions of the standards at increasing levels of complexity and sophistication and engage in a coherent progression of learning that is coordinated over time, clear, and organized. The natural progression of lessons supports student mastery of the Performance Expectations and prevents misunderstanding. The students build knowledge in the content area in a way that builds upon what they learned previously. The “Progress Build” of each unit includes an explanation of progression throughout the unit and how

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			students' explanatory understanding of the unit's focal phenomena develops and deepens over the course of a unit. Additionally, each unit provides a "Resource Coherence Flow Chart" that visually represents the storyline of the unit, showing the coherent flow of questions, evidence, and ideas from each lesson in the unit that support students as they build complex explanations of the unit's anchor phenomenon. For example, in the Thermal Energy Unit, the students build knowledge through three levels of science understanding and each level adds knowledge to the one before it to make sure that students build upon what they learned before. At the start of the Thermal Energy unit (Chapter 1), students first build an understanding of temperature by conducting a hands-on investigation with hot and cold water and then use the Thermal Energy Simulation to discover that molecules have energy because they are in motion, which builds understanding of the relation of temperature to the kinetic energy of an object's molecules, which increases as the speed of the molecules increase. Next, they build on this knowledge to explain how warmer objects transfer energy to cooler objects when they are in contact by reading informational texts, using a simulation, and using an energy cube model (Chapter 3). Finally, students learn how the size of the objects in contact affects the amount

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			of energy transfer between them and the amount of temperature change. Throughout the unit, students are also building knowledge about how to communicate in a science setting allowing for them to effectively meet multiple Performance Expectations in the year. In the Geology on Mars unit students engage in many of the Science and Engineering Practices, but the practice of Engaging in Argument from Evidence (SEP) is intentionally developed throughout the unit. In Chapter 1, students examine evidence to make comparisons between multiple rocky planets and are introduced to scientific argumentation as a practice that will structure their inquiry about what could have formed the channel on Mars. In Chapter 2, students learn how scientists can use models to test their ideas and obtain evidence about processes in the natural world that are difficult to observe. In Chapter 3, students continue to evaluate additional evidence gathered in Chapter 1 and 2 using the "Evidence Gradient." They are introduced to reasoning as a part of scientific argumentation and connect evidence to a claim about the channel to produce a written argument.
	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	**Yes**	Students apply mathematical thinking when applicable. Across the majority of the materials, students are not introduced to math skills that go beyond the Louisiana Student Standards for Mathematics

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	clear references to the math standards, specifically in teacher materials.		(LSSM) for Grade 8. Students regularly are called to 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 Thermal Energy Unit, Chapter 3, multiple mathematical standards from Grades 6 (LSSM 6.RP.1, 6.RP.2, 6.RP.3a, 6.SP.5, 6.SP.5b), 7 (LSSM 7.RP.2:, 7.RP, 7.RP.2b), and 8 (LSSM 8.EE.5, 8.F.5, 8.SP.1, 8.SP.2) are applied in Lesson 3 as students use a simulation to understand that because the total energy of a system doesn't change, the equilibrium temperature of a system is defined by both its total kinetic energy (thermal energy) and its number of molecules. In the Natural Selection Unit, Chapter 1, Lessons 2 through 6, the standard with a dedicated SEP of Using Mathematics and Computational Thinking, LSSM 8-MS-LS4-6, is fully covered. Lessons 2, 3, and 6 only use mathematical standards from grade 6 (LSSM 6.SP.1, 6.SP.4, 6.SP.5a, 6.SP.5c) as they recognize a statistical question and display and summarize numerical data sets to explain why the newts in the population became more poisonous over time. In Lesson 4, students use skills from Grade 6 (LSSM 6.SP.1, 6.SP.4, 6.SP.5a, 6.SP.5c), Grade 7(LSSM 7.RP.2a, 7.RP.2b, 7.RP.2c) and Grade 8 (8.SP.1, 8.SP.2) as they read and analyze histograms to understand how the

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			distribution of adaptive and non-adaptive traits changes in a population.
6. SCAFFOLDING AND SUPPORT: Materials provide teachers with guidance to build their own knowledge and to give all students extensive opportunities and support to explore key concepts using multiple, varied experiences to build scientific thinking. ☒ Yes ☐ No	**Required** **6a)** There are separate **teacher support** materials including: scientific background knowledge, support in three-dimensional learning, learning progressions, common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	There are separate teacher support materials provided. Support materials include, within each unit, Planning for the Unit and Teacher References. Planning for the Unit has several tabs that include Unit Overview (describes what is included in the unit, why students are learning about the unit, and how the teacher will instruct the students); Unit Map (shows the teacher what the students will figure out and how they figure it out for each chapter); Progress Build (describes the way students' understanding grows throughout the unit); Getting Ready to Teach (gives step-by-step instructions of how to prepare for the unit); Materials and Preparation (lists materials needed for the entire unit along with kits to purchase if needed); Science Background (provides teacher background knowledge, possible misconceptions or preconception knowledge from students, and pedagogical considerations); and Standards at a Glance (list of Performance Expectations SEPs, DCIs, CCCs and English Language Arts and Mathematics standards). Each unit also has a section with Teacher References which includes a Lesson Overview Compilation (briefly describes each chapter and lesson's overall questions); Standards and Goals (lists the standards addressed); 3-D

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			Statements (breaks down each chapter and lesson through color coding the overview with a three-dimensional aspect); Assessment System (provides a table to explain the assessment type, where it is located within the unit, and DCIs covered); Embedded Formative Assessments (explains the location of formative assessments that help a teacher monitor and support student progression); Articles in This Unit (briefly describes the article, when students are introduced to the articles and explains what students learn from the article); Apps in This Unit (notifies teacher of any needed applications students will use throughout the unit); and FlexExtensions in This Unit (if included in the unit, teachers are informed about the information the FlexExtension contains and where it is located within the unit). Support materials within each lesson include Digital Resources (lists all needed resources for that particular lesson); Overview (describes step by step for the lesson, includes time for each step, and what students will learn); Materials & Preparation (what should be on classroom walls, materials for each class, individual students, and digital tools, and a preparation list of things to do before, during, and after class); Differentiation (breaks down support and potential challenges for both Diverse Learners and Students Who Need More Support);

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			Standards (has a color coded 3-D Statement along with where SEPs, DCIs, and CCCs are addressed within the lesson); Vocabulary (lists vocabulary words introduced in the lesson); and Unplugged? (informs the teacher know if any items are available offline for students with limited internet access).
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. In each lesson, under the Differentiation section on the Lesson Brief Tab, teachers are given support and potential challenges that might arise for both English Learners and students who may need more support. Each unit overview also includes a Phenomenon Relevance Note that includes alternatives, as well as suggestions for modifying the anchoring phenomenon to make it more accessible and/or locally and culturally relevant for students, if needed. For each of the reading articles associated with the lessons of the units, a reader option is available. There is an annotation option for the articles and a vocabulary identification option in an alternate language in each article. Lesson materials also include Equity Checks with specific tips, techniques, and points to consider to support the teacher in recognizing and valuing student resources and promoting equitable participation. Each lesson includes a large multi-language glossary

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			inclusive of several languages. Specific differentiation strategies are given in the teacher's manual before each lesson for students who need more support and more challenge. For example, the Geology on Mars Unit, Chapter 1, Lesson 3 relies heavily on student-to-student discussions and suggests intentional pairing of English learners with other students who speak their primary language and encouraging them to have some or all of their conversations in that language. Students who need more support can be placed with more capable readers so that they can provide assistance to students who need more support with reading and interpreting the card-sort activity materials. Teachers can model how to use the Scientific Argumentation Sentence Starters posted on the scientific argumentation wall and discuss which claim the evidence should be placed under and why. For students who need more challenge, the teacher can challenge them to think of what other types of evidence might help students be more confident about what formed the channel on Mars. In the Thermal Energy Unit, Chapter 4, Lesson 3, a graphic organizer is provided to help students organize their arguments and supports students in the challenging task of coordinating evidence and claims. This lesson also notes that the work students completed annotating and sorting the evidence cards in the previous

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			lessons (Lessons 1 and 2) offers important support for the work students will do with the Reasoning Tool in this lesson. The annotations and the card sort provide a record of students' initial thinking and discussion about the evidence. The Reasoning Tool is an embedded support for the writing that is conducted at the end of this lesson as it lays out the evidence and connections that students will include in their written arguments.
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. A full teacher's guide is available online and for download and print. Each unit contains an Investigation Notebook which contains the materials needed for the entire unit. The Investigation Notebook is available either digitally or through a package kit by the vendor. Each unit incorporates scientific articles through the Article Compilation, which is available digitally and as a printable PDF. Students have access to student apps and text through digital platforms. Prepared kits can be ordered for each unit through the vendor. At the beginning of each lesson section there is a "Material and Preparation" section for teachers to review prior to teaching. For example, the Thermal Energy Unit "Materials and Preparation" document notes that this unit includes a kit with materials to present the lessons five times for a class of 40 students. All items

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			included in the kit are listed, with consumable items noted with an asterisk, and any items that the teacher will need to provide are listed separately. The "Preparation at a Glance" provides teachers with an overview of the amount of time it should take the teacher to prepare the materials for each lesson of the Thermal Energy unit, broken down by chapter and lesson. An "Offline Guide" is also provided so that teachers can download all unit and lesson resources for future offline access. Downloadable offline content includes the complete teacher's guide, projections, videos, copymaster PDFs, assessment guides, and any other resources used. Lessons and material can be assigned to individual students through Google Classroom. Units are available as hybrid and remote learning options with printable pdf versions.
	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 Guidelines for Science Investigation are provided for every student within their Investigation Notebook. This includes guidelines such as following instructions, protecting eyes and hands, and telling the teacher if they have allergies. Additional safety guidelines, procedures, and equipment are added, as needed, depending on the investigation. For example, the LA Grade 8 Companion

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			Student Booklet provides a complete list of Safety Guidelines for Science Investigations. In the activity "Designing Hot Packs and Cold Packs," students are given specific safety considerations regarding safely using chemicals. The safety notes instruct students to not taste or touch substances in the investigation, to mix substances only when they are told to do so by their teacher, and to let the teacher know if something gets on their skin, clothes, or in their eyes. In the Evolutionary History Unit, there is a Flextension activity where students reconstruct an owl pellet skeleton. During the owl pellet reconstruction activity, the teacher is instructed to review the safety guidelines with students (located in each student's Investigation Notebook), and the materials note that there are two specific guidelines that should be emphasized for this activity: Guideline 6: "Keep your hands away from your face." and Guideline 11: "Wash your hands after class." Students use dissection tools—including a probe, tweezers and gloved hands—to break the owl pellet into smaller pieces.
	7c) The total amount of content is **viable** for a school year.	**Yes**	The total amount of content is viable for a school year. Sufficient time is allowed for exploration, reteaching, and assessments. There are a total of 126 lessons in all units and engineering internships set on a 45-minute schedule. The Louisiana Grade 8 Companion Booklet includes six additional

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			lessons. Instruction Suggestions are embedded throughout the materials for teachers to include in the lessons if time permits. For example, in the Plate Motion Unit, Chapter 2, Lesson 4, the lesson begins with a 5-minute warm-up where students reflect on the weaknesses of the physical models they created in the previous lesson, followed by a 10-minute explanation of what happens at plate boundaries using the modeling tool, a 20-minute exploration of plate boundaries using a simulation, and then revisiting models of plate boundaries for 10 minutes. The Rock Transformations Unit, Chapter 1, Lesson 5 provides a 5-minute warm-up activity, followed by 15 minutes of modeling how rocks form, evaluating rock observations for 17 minutes, and discussing how rocks formed for 8 minutes. An optional self-assessment is included, which is not included in the 45-minute lesson, as well as a homework assignment. In the Geology on Mars Unit, Chapter 1, Lesson1, an Instructional Suggestion includes an activity that students can engage with if time permits. Students watch a video, “The Earth System,” and work individually or in small groups to create a drawing, video, or skit that explains how the Earth is a system.” The LA Grade 8 Companion Student Booklet contains additional activities to go along with 4 units: Plate Motion (one article with reading and rereading

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			worksheets), Rock Transformations (two articles with reading and rereading worksheets), Thermal Energy (a hands-on investigation), and Natural Selection (three articles with reading and rereading worksheets).
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. All of the assessments for the unit are located in the Teacher References section under the sub header Assessment System and Embedded Formative. The Assessment System includes a range of "On-the-Fly" formative assessments designed to guide teachers as they monitor students' learning progress toward conceptual understanding for both DCIs and CCC and dexterity with targeted SEPs. Each launch unit also includes a three-dimensional performance task in the form of a written scientific argument, which the teacher can evaluate by using the provided rubrics for assessing DCIs, CCCs, and students' developing facility with the SEP of argumentation. Summative assessments, such as End-of-Unit Assessments, End-of-Unit Performance, Science Seminars, and Investigative Assessments, are also included within the Assessment System section as applicable. For example, in the Natural Selection Unit, Chapter 1, Lesson 1, students complete a pre-unit assessment consisting of 18 multiple-

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			choice questions and two written-response questions. Students engage in Analyzing and Interpreting Data (SEP) including bar graphs showing the spot size of guppies in two different populations, diagrams of hummingbird populations, and other displays of data (CCC, Patterns, Cause and Effect). Students examine data showing how the guppy population changed over time, analyze claims about the data, and construct a written explanation of which claim is accurate. Students also analyze data to explain what happened to squirrels over many generations (SEP, Obtaining, Evaluating, and Communicating Information; CCC Patterns, Cause and Effect; DCI MS.LS4C.a). In the Evolutionary History Unit, Chapter 2, Lesson 5, students complete a 3-D performance task that can be used as an "On-the-Fly" assessment. Students model (SEP, Developing and Using Models) how species differ from the common ancestors (DCI, MS.LS4A.b) by putting speciation in the correct order (CCC, Cause and Effect) and model how populations change over time (CCC, Stability and Change). In the Rock Transformation Unit, Chapter 4, Lesson 4, students complete an End of Unit Assessment consisting of 20 multiple-choice questions and 2 written-response questions in which they engage in Analyzing and Interpreting Data (SEP) including images, maps, and diagrams,

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			evaluate evidence, and engage in Constructing Explanations (SEP) of whether material in sedimentary rock can become igneous rock and whether igneous rock become sedimentary rock (CCC, Stability and Change, Energy and Matter).
	Required **8b) Assessment** items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on integration of the three dimensions. Under the Assessment System tab of the Teacher Reference section in the unit home page, a table is provided that breaks down the three dimensions within each formative and summative assessment. The only unit that does not include this table is the Geology on Mars Unit, but the unit does include embedded formative assessments that integrate the three dimensions. The two Engineering Internships also do not provide the table showing alignment to the three dimensions, but information is provided as to how the engineering internships can be used as a student performance assessment. For example, in the Thermal Energy Unit, Chapter 3, Lesson 3, students engage in Planning and Carrying Out an Investigation (SEP) to show how energy transfers (DCI, PS3A.d, PS3B.a, PS3B.c). During the lesson warm-up, students predict what they think the outcome of a test with same- and different-sized objects will be, which can be used as an On-the-Fly Assessment of students' understanding of ideas at Level 3 of the Progress Build, as

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			well as their understanding of the CCC of Systems and System Models and of Stability and Change. Students then run simulations on the two options for the heating system and then engage in Analyzing and Interpreting Data (SEP). They explain (SEP Obtaining, Evaluating, and Communicating Information) why one heats better using what they figured out about energy transfer (CCC, Cause and Effect). Teachers have the option of then giving students the Investigation Assessment, which is a two-part activity in which students plan their own investigation and then share their plan with a partner and collaborate to conduct an investigation using the Thermal Energy Simulation. In the Evolutionary History Unit, Chapter 3, Lesson 3, students engage in Analyzing and Interpreting Data (SEP) about a Mystery Fossil from the museum. Students look for Patterns (CCC) and discuss where this fossil should go on the evolutionary tree (DCI, MS.LS4A). Students then make a final determination about which type of organism the Mystery Fossil is more closely related to, which serves as an On-the-Fly Assessment of students' understanding of how to identify diagnostic structures to determine relatedness.
	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.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			The rubrics and scoring guides list the Performance Expectation next to the anticipated answer or the question. The On-the-Fly assessments include “look fors” and “now whats” to show teachers where to guide and when to know students have mastered the concepts. Students are given beginning assessments and critical juncture assessments. Students' responses are given for teachers to compare. There are also rubrics built into the online assessment system. The rubrics for pre- and end-of-unit assessments correspond to a Level of Progress Build. The Assessment System gives a list of possible assessments for each unit and what it will assess in the three dimensions. For example, in the Plate Motion unit, Chapter 2, Lesson 2.6, the Critical Juncture Assessment includes an answer key and scoring guide. Progress Build levels are provided and are aligned to each assessment item. In addition, a scoring guide is provided to help interpret student scores. The guide interprets the student scores according to how many questions the students answered correctly at each level and then provides an over level of understanding demonstrated by the student’s performance. Science content rubrics are also provided that help teachers understand the student’s level of understanding based on students’ written responses. The guide provides both the level of understanding, of 1, 2, or 3, as well as student sample responses at each level.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			In the Natural Selection unit, Chapter 4, Lesson 4.4, students are provided an On-the-Fly Assessment. Teacher guidance includes a description of student look fors. For example, "As students explain why the sunflowers grew the way they did in Part 2 of Rereading 'Growing Giant Pumpkins,' students should be considering both genes and the environment as factors that contribute to the size of plants." Guidance is provided for students who are not considering how genetic and environmental factors contribute to the growth of organisms and suggests that the teacher use another example, such as different-sized dogs, and then "ask students why some dogs are bigger than others." and "prompt students to think about genes." In the Rock Transformation unit, the materials provide a Pre-Unit Assessment Answer Key and Scoring Guide. The guide includes a rubric that shows possible student responses at each level of the progress build. For example, for Writing Response Question #1, students are at Level 1 when the "Student describes how igneous rock forms from magma that cools." A possible student response includes "The igneous rock formed from magma that cooled down. So, if the magma was made out of sedimentary rock, then the igneous rock could have been sedimentary rock in the past. At Level 2, "Student demonstrates an understanding of the Level 1 content above, and the student demonstrates an

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			understanding of how a rock can turn into magma," and at Level 3, "Student demonstrates an understanding of the Level 1 and 2 content above and explains that a rock from Earth's surface can be subducted into Earth's interior by plate motion." An additional rubric for CCCs is also provided that allows a score of 0, 1, and 2 depending on the student's level of understanding of the CCC Energy and matter. Descriptions are provided to evaluate student understanding, such as, "Response correctly describes that matter can be transferred from one type of rock material into another. For example, describes that sedimentary rock can become magma." for a score of 1.

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 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

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			about the core ideas of the unit, and this provides purpose for students to engage in the investigations and lessons that follow as they work towards figuring out the phenomenon.
	3. Alignment & Accuracy	**Yes**	The majority of the 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. No evidence of incorrect or out of date science explanations could be found. Instructional materials spend minimal time on content outside of the course, grade, or grade-band.
	4. Disciplinary Literacy	**Yes**	Students regularly engage with authentic sources that represent the language and style used and produced by scientists. 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. Within each module, students are asked to produce and revise models of the anchoring phenomenon. Across the materials, students are regularly engaged in a variety of tasks, such as creating models, solving problems, explaining phenomena, and drawing conclusions from investigations. However, vocabulary is presented throughout the units as

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			needed, but students are often provided definitions prior to exploration and do not have the opportunity to create meaning for themselves.
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 Louisiana Student Standards for Mathematics (LSSM) for Grade 8. Students regularly are called to apply mathematics skills and understanding to engage in Using Mathematics and Computational Thinking (SEP) appropriately in the context of their learning.
	6. Scaffolding and Support	**Yes**	There are separate teacher support materials provided. Appropriate suggestions and materials are minimally provided for differentiated instruction supporting varying student needs at the unit and lesson level.
	7. Usability	**Yes**	Text sets, laboratory, and other scientific materials are readily accessible through vendor packaging. Materials help students

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

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			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. Sufficient time is allowed for exploration, reteaching, and assessments.
	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. Scoring guidelines and rubrics align to performance expectations, and incorporate criteria that are specific, observable, and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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 2020-2021 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: Acadia, Ascension, Beauregard, Bossier, Caddo, Calcasieu, City of Monroe, Claiborne, Diocese of Alexandria, East Baton Rouge, Evangeline, Firstline Schools, Iberia, Iberville, Jefferson, Jefferson Davis, Jefferson Parish Charter, KIPP, Lafayette, Lafourche, Lincoln, Livingston, Louisiana Tech University, Louisiana Virtual Charter Academy, Lusher Charter School, Natchitoches, Orleans, Ouachita, Plaquemines, Pointe Coupee, Rapides, Richland, Special School District, St. Charles, St. Landry, St. Tammany, Tangipahoa, Tensas, Vermillion, Vernon, West Feliciana, and Zachary Community. This review represents the work of current classroom teachers with experience in grades 3-12.

Appendix I.

Publisher Response

The publisher had no response.

Appendix II.

Public Comments

There were no public comments submitted.