



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: **Biology – The Living Earth**

Grade/Course: **Biology**

Publisher: **Kognity USA, Inc.**

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Overall Rating: **Tier 3, Not representing quality**

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

STRONG	WEAK
	1. Three-dimensional Learning (Non-negotiable)
	2. Phenomenon-Based Instruction (Non-negotiable)

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.			
<p>Non-negotiable 1. THREE-DIMENSIONAL LEARNING: Students have multiple opportunities throughout each unit to develop an understanding and demonstrate application of the three dimensions.</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Required 1a) Materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of the materials engage students in integrating the science and engineering practices (SEP), crosscutting concepts (CCC), and disciplinary core ideas (DCI) to support deeper learning.</p>	<p>No</p>	<p>The instructional materials are not 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 do not integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. Students often read science content before participating in activities. For example in Unit 6, Climate Change and Dissolved Gases, Module 6.1, Lesson 6.1.3, students read about how decreasing ocean pH affects coral reefs before utilizing a model to reinforce these cause-and-effect relationships. Later in this lesson, students discover that the effects are a result of carbon dioxide in the atmosphere (HS.LS2A.b). The materials often use call-out boxes to introduce CCCs after students read content and engage in activities. These boxes include basic questions that do not directly connect to DCIs or describe the CCCs in detail for the students. For example, in Unit 5, Structure, Function, and Growth, Module 5.1, Lesson 5.1.2, students engage with an interactive for a cell going through mitosis (DCI, HS.1A.b). Below the interactive is a</p>

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			<p>section for the Stability and Change CCC, which describes the checkpoints in the mitosis cycle as examples of maintaining stability. The materials present information without providing students with opportunities to actively engage with the content and make the connections themselves. The investigations at the end of the lessons often attempt to encourage students to explore three-dimensional learning through research projects (SEP, Obtaining, Evaluating, and Communicating Information) or simulations (SEP, Using Models); however, the materials do not provide sufficient opportunities for students to interact with the three dimensions at a level which supports deeper learning. For example, in Unit 1, Ecosystem Interaction and Energy, Module 1.2, Performance Task 1.2.6, students read about the changes occurring in the bison population in Yellowstone Park before answering low-complexity questions such as, “Between 1981 and 2007, the bison population stabilized at about 4700 bison (the number of individuals that the environment could support). What is this called?” The materials do not provide the opportunity for students to analyze data from tables or graphs and include minimal connections to CCCs, and therefore do not support deeper learning.</p>

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<p>Non-negotiable 2. PHENOMENON-BASED INSTRUCTION: Explaining phenomenon and designing solutions drive student learning.</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Required 2a) Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in a coherent sequence of learning a majority of the time. Phenomena provide students with authentic opportunities to ask questions and define problems, as well as purpose to incrementally build understanding through the lessons that follow.</p>	<p>No</p>	<p>Observing and explaining phenomena and designing solutions do not provide the purpose and opportunity for students to engage in learning a majority of the time. Although the anchor phenomena within several units spark students’ interest to generate questions and define problems which motivate learning about the core ideas of the unit, there is often a disconnect between the investigative phenomena and anchor phenomena. For example, Unit 1, Ecosystem Interaction and Energy, Module 1.1, Lesson 1.1.5 does not provide students with the opportunity to apply what they have learned about mountain lions and how they obtain energy to the unit phenomenon of the effects of mountain lions moving eastward on ecosystems and people. The materials do not present a clear relationship between the investigative phenomenon and the anchor phenomenon, which prevents students from engaging in sense-making surrounding the anchor phenomenon. Some units introduce the anchor phenomenon in a manner that does not provide purpose for the learning. For example, in Unit 5, Structure, Function, and Growth, Introduction section, students examine a set of photographs, one of a cracked chicken egg and the second of an adult chicken. Students also watch a video of a fertilized egg becoming a frog. However, the materials do not require students to utilize</p>

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			<p>these photographs nor the video to generate questions or define problems. The text states, “You may have noticed that two different general processes occur as the single cell becomes a full-grown organism,” then provides examples of this process. Similarly, the Scientific and Engineering Practice box at the end of the section provides questions in lieu of engaging students by prompting them to generate their own questions.</p>
	<p>Required 2b) Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. This includes testing theories or models, generating data, and using reasoning and scientific ideas to provide evidence to support claims.</p>	<p>No</p>	<p>Materials are not designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band to explain phenomena. In Unit 1, Ecosystem Interaction and Function, Module 1.4.1, Zooming In section, students watch a video about the engineering design process. The materials prompt students to recall the steps of the engineering design process, then list the answer immediately below the prompt instead of providing students with the opportunity to develop their own criteria or process. Similarly, Unit 3, Evidence of Common Ancestry and Diversity, Module 3.1, Lesson 3.1.2 directs students to observe Figure 1 and summarize how fossils are formed, while including the summary within the same paragraph as the student directions. There is no evidence of student engagement between the prompt and the content summary. In Unit 2, Module 2.2, Lesson 2.2.2, students investigate cellular</p>

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			<p>respiration using step-by-step instructions. Later in the lesson, students investigate cellular respiration and photosynthesis using a simulation. After a series of questions, the lesson provides a summary of the investigation and presents the results. Students also choose one of four conclusions which supports the investigation's results. Then, students record their own version of a conclusion which supports the same investigation. The materials provide examples of conclusions to students before encouraging them to form conclusions of their own.</p>
	<p>2c) Materials provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.</p>	<p>No</p>	<p>The materials do not provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena. Though the materials include a similar reflection question after each lesson, there is no evidence that the materials provide authentic opportunities within the lessons for students to make meaningful connections to the learning to answer questions effectively. For example, in Unit 1, Ecosystem Interaction and Energy, Module 1.1, Lesson 1.1.1 and Lesson 1.1.6, students reflect on the lessons by answering the same question: "How do you think learning about the mountain lion's ecosystem could be relevant to your life or to your community?" but there are</p>

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			<p>no opportunities for students to connect the phenomenon to their experiences and knowledge within the lessons or prior to the reflection question. Units do not consistently provide opportunities to connect evidence to the anchor phenomenon. Throughout the materials, students respond to reflection prompts that do not require them to demonstrate the relevance of knowledge to the investigative or anchor phenomena or to their own experiences. For example, in Unit 4, the questions rarely require students to engage in sensemaking about the phenomena or in making authentic connections to their own lives and communities. Examples include: “Why might an understanding of genetics be beneficial in the field of health and wellness?” “Why might people in the world care about how characteristics are inherited?” “Using your own words, describe what you learned from the incomplete dominance and codominance of Punnett square activities about patterns of inheritance” “How do the terms ‘DNA,’ ‘genes,’ and ‘chromosomes’ help you to communicate about how traits are inherited?” In Unit 5, Structure, Function, and Growth, Module 3.1, students reflect on why “people of the world” might care about stem cells, which does not encourage students to make meaningful connections or require them to relate the</p>

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			DCI's exploration to their own experiences.
<p>Non-negotiable (only reviewed if Criteria 1 and 2 are met)</p> <p>3. ALIGNMENT & ACCURACY: Materials adequately address the Louisiana Student Standards for Science.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Required 3a) The majority of the Louisiana Student Standards for Science are incorporated, to the full depth of the standards.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
	<p>Required 3b) The total amount of content is viable for a school year.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
	<p>Required 3c) Science content is accurate, reflecting the most current and widely accepted explanations.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
	<p>3d) In any one grade or course, instructional materials spend minimal time on content outside of the course, grade, or grade-band.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
<p>Non-negotiable (only reviewed if Criteria 1 and 2 are met)</p> <p>4. DISCIPLINARY LITERACY: Materials have students engage with authentic sources and incorporate speaking, reading, and writing to develop scientific literacy.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>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.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
	<p>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.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>

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	<p>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.</p>	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	<p>Required 4d) Materials provide a coherent sequence of learning experiences that build scientific vocabulary and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.</p>	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
Section II: Additional Criteria of Superior Quality			
<p>5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the Louisiana Student Standards for Math.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>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.</p>	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	<p>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.</p>	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
<p>6. SCAFFOLDING AND SUPPORT: Materials provide teachers with guidance to build their own knowledge and to give all students extensive opportunities and</p>	<p>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</p>	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.

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<p>support to explore key concepts using multiple, varied experiences to build scientific thinking.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses). Support also includes teacher guidance in the materials' approach to phenomenon based instruction and provides explicit guidance on how the materials address, build, and integrate the three dimensions.</p>		
	<p>Required 6b) Teacher support materials include guidance to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in such a way that is developmentally appropriate.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
	<p>Required 6c) Support for English Learners and diverse learners is provided. Appropriate suggestions and materials are provided for supporting varying student needs at the unit and lesson level. The language in which questions and problems are posed is not an obstacle to understanding the content, and if it is, additional supports are included (e.g., alternative teacher approaches, pacing and instructional delivery options, strategies or suggestions for supporting access to text and/or content, suggestions for modifications, suggestions for vocabulary acquisition , etc.).</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
<p>7. USABILITY: Materials are easily accessible, promote safety in the science classroom, and are viable for implementation given the length of a school year.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Required 7a) Text sets (when applicable), laboratory, and other scientific materials are readily accessible through vendor packaging.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>
	<p>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.</p>	<p>Not Evaluated</p>	<p>This section was not evaluated because the Non-Negotiable Criteria were not met.</p>

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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. <input type="checkbox"/> Yes <input type="checkbox"/> 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.	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	Required 8b) Assessment items and tasks are structured on integration of the three dimensions and include opportunities to engage students in applying understanding to new contexts.	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	8c) Scoring guidelines and rubrics align to performance expectations, and incorporate criteria that are specific, observable, and measurable.	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
FINAL EVALUATION <i>Tier 1 ratings</i> receive a “Yes” for all Non-negotiable Criteria and a “Yes” for each of the Additional Criteria of Superior Quality. <i>Tier 2 ratings</i> receive a “Yes” for all Non-negotiable Criteria, but at least one “No” for the Additional Criteria of Superior Quality. <i>Tier 3 ratings</i> 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 Quality²	1. Three-dimensional Learning	No	The instructional materials are not 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 do not integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning.
	2. Phenomenon-Based Instruction	No	Observing and explaining phenomena do not frequently provide the purpose and

² Must score a “Yes” for all Non-negotiable Criteria to receive a Tier I or Tier II rating.

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			opportunity for students to engage in learning a majority of the time. Materials are often not designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate to their grade band in order to explain phenomena. The materials do not provide frequent opportunities for students to make meaningful connections to their own knowledge and experiences as well as those of their community during sense-making about the phenomena.
	3. Alignment & Accuracy	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	4. Disciplinary Literacy	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
II: Additional Criteria of Superior Quality³	5. Learning Progressions	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	6. Scaffolding and Support	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	7. Usability	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
	8. Assessment	Not Evaluated	This section was not evaluated because the Non-Negotiable Criteria were not met.
FINAL DECISION FOR THIS MATERIAL: Tier 3, Not representing quality			

³ Must score a “Yes” for all Additional Criteria of Superior Quality to receive a Tier I rating.

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

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

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

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

Appendix I.

Publisher Response

The publisher had no response.

Appendix II.

Public Comments

There were no public comments submitted.