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: **Discovery Education Science Techbook, Gr 4 [Resubmission]**

Grade/Course: **4**

Publisher: **Discovery Education**

Copyright: **2020**

Overall Rating: **Tier III, Not representing 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)

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
Non-negotiable **1. THREE-DIMENSIONAL LEARNING:** Students have multiple opportunities throughout each unit to develop an understanding and demonstrate application of the three dimensions. ☒ Yes ☐ No	**Required** **1a)** Materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of the materials teach the science and engineering practices (SEP), crosscutting concepts (CCC) and disciplinary core ideas (DCI) separately when necessary but they are most often integrated to support deeper learning.	**YES**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. For example, in Unit 2, Concept 2.2, Activities 4 through 7, students read articles and watch videos about different types of fossil fuels and biofuels. Students engage in Obtaining, Evaluating, and Communicating Information (SEP) as they determine that the Energy and Matter (CCC) that humans use as fuel are derived from natural sources (DCI, UE.ESS3A.a). In Unit 3, Concept 3.1, Activity 12, students investigate the effects of glacial erosion using an ice cube, sand, and clay. Students engage in Developing and Using Models (SEP) to show the effects (CCC, Cause and Effect) of glaciers. Students demonstrate that ice can break rocks, soils, and sediments into smaller particles and move them around (DCI, UE.ESS2A.a). In Unit 4, Concept 4.1, Activity 6, students engage in Analyzing and Interpreting Data (SEP) of geographic locations of earthquakes by plotting these locations on a map. While looking for Patterns (CCC) in the locations of earthquakes, students build on

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			knowledge from a previous lesson in which they identified major mountains and ocean basins on a map. Students then make a prediction, based on their evidence, as to where three new earthquakes may happen. This activity helps students to recognize that most earthquakes occur in bands that are often along the boundaries between continents and oceans (DCI, UE.ESS2B.a). In Unit 5, Concept 5.3, Activity 7, students engage in Planning and Carrying Out Investigations (SEP) to determine that light can transfer energy (DCI UE.PS3B.b). Students are given a solar-powered object, a thermometer, a radiometer, ice cubes, and various sources of light. They are given time to plan and carry out investigations to see if they can transfer energy using light. Students record their plan and their results in their notebooks to use as evidence that energy can be transferred in various ways (CCC, Energy and Matter).
Non-negotiable **2. PHENOMENON-BASED INSTRUCTION:** Explaining phenomenon and designing solutions drive student learning. ☐ Yes ☒ No	**Required** **2a)** Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time.	**NO**	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. The launch of the phenomena, often presented as videos, are, at times, very broad and sometimes include concepts beyond the scope of the Performance Expectations (PE) for 4th grade. In order for students to be successful in developing key science concepts, students may have

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			to rely on the teacher to provide them with questions in order to incrementally make sense of the phenomenon. For example, Unit 1, Car Crashes begins with a 7 minute video about human car crash dummies that demonstrates one way car crashes are studied. The video targets several concepts, some of which align to Grade 6-8 standards. Additionally, at the start of each concept, students are provided a "Can You Explain?" question, followed by a description of what they will be learning during the concept, and then a list of student objectives. This opening structure does not allow students to observe and develop questions about a specific phenomenon in order to make sense of it. The phenomena do not always drive student learning throughout the unit. Although students develop scientific concepts in lessons that follow, student learning and activities are not grounded in the anchor phenomenon. For example, in Unit 2, Energy Resources, the anchor phenomenon is presented as a 6 minute video about the water from Yosemite National Park. Most of the video discusses the beauty of water, how the water is used for vegetation which is shipped all over the world, and the importance of water conservation. The focus of the unit centers around how humans use natural resources to produce energy. After the video is

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			presented, the students are asked to consider the energy involved in the water movement. Engaging with the phenomenon is not apparent as the teacher provides questions for the students to think about. The launch of the unit does not create an entry point for students to begin learning without the aid of the teacher generated questions. Furthermore, the video does not provide the purpose and opportunity for the lessons that follow. In the first lesson of Concept 2.1, students are asked to consider how energy is used to power remote-controlled cars and other devices. Although connections can be made about energy, the transition from the anchor phenomenon to the first lesson lacks coherence. Because the video is not strategically connected to the major science ideas of the lesson, students may not be able to focus their learning on uncovering or making sense of a specific phenomenon as they engage in the lessons that follow.
Non-negotiable (only reviewed if Criteria 1 and 2 are met) **3. ALIGNMENT & ACCURACY:** Materials adequately address the Louisiana Student Standards for Science.	**Required** **3a)** The majority of the Louisiana Student Standards for Science are incorporated, to the full **depth of the standards**.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
☐ Yes ☐ No	**3c)** In any one grade or course, instructional materials spend minimal time on content outside of the course, grade, or grade-band.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Section II: Additional Criteria of Superior Quality			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the the Louisiana Student Standards for Math. ☐ Yes ☐ No	**Required** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
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).	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
	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.).	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
7. USABILITY: Materials are easily accessible, promote safety in the science classroom, and are viable for	**Required** **7a)** Text sets (when applicable), laboratory, and other scientific materials are **readily accessible** through vendor packaging.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
implementation given the length of a school year. ☐ Yes ☐ No	**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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
	7c) The total amount of content is **viable** for a school year.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.
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.	**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**.	**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

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

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

Section	Criteria	Yes/No	Final Justification/Comments
I: Non-negotiable Criteria of Superior Quality[2]	1. Three-dimensional Learning	**Yes**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of materials integrate the Science and

[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
			Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning.
	2. Phenomenon-Based Instruction	**No**	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.
	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 Quality[3]	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 III, 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 2019-2020 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: Ascension, Beauregard, Bossier, Caddo, Calcasieu, Caldwell, City of Monroe, Desoto, East Baton Rouge, Einstein Charter Schools, Iberia, Jefferson, Jefferson Davis, KIPP New Orleans, Lafayette, Lafourche, Lincoln, Livingston, LSU Lab School, Orleans, Orleans/Lusher Charter School, Ouachita, Plaquemines, Pointe Coupee, Rapides, Richland, RSD Choice Foundation, St. John the Baptist, St. Charles, St. James, St. Landry, St. Mary, St. Tammany, Tangipahoa, Vermillion, Vernon, West Baton Rouge, West Feliciana, and Zachary. This review represents the work of current classroom teachers with experience in grades Pre K-5.

Appendix I.

Publisher Response

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: **Discovery Education Science Techbook, Gr 4**

Grade/Course: **4**

Publisher: **Discovery Education**

Copyright: **2020**

Overall Rating: **Tier III, Not representing 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)

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	Publisher's Response
Section I: Non-negotiable Criteria of Superior Quality **Materials must meet Non-negotiable Criteria 1 and 2 for the review to continue to Non-negotiable Criteria 3 and 4. Materials must meet all of the Non-negotiable Criteria 1-4 in order for the review to continue to Section II.**				
Non-negotiable **1. THREE-DIMENSIONAL LEARNING:** Students have multiple opportunities throughout each unit to develop an understanding and demonstrate application of the three dimensions. ☒ Yes ☐ No	**Required** **1a)** Materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of the materials teach the science and engineering practices (SEP), crosscutting concepts (CCC) and disciplinary core ideas (DCI) separately when necessary but they are most often integrated to support deeper learning.	**YES**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning. For example, in Unit 2, Concept 2.2, Activities 4 through 7, students read articles and watch videos about different types of fossil fuels and biofuels. Students engage in Obtaining, Evaluating, and Communicating Information (SEP) as they determine that the Energy and Matter (CCC) that humans use as fuel are derived from natural sources (DCI, UE.ESS3A.a). In Unit 3, Concept 3.1, Activity 12, students investigate the effects of glacial erosion using an ice cube, sand, and clay. Students engage in Developing and Using Models (SEP) to show the effects (CCC, Cause and Effect) of glaciers. Students demonstrate that ice can break rocks, soils, and sediments into smaller particles and move them around (DCI, UE.ESS2A.a). In Unit 4, Concept 4.1, Activity 6, students engage in Analyzing and Interpreting Data (SEP) of	Discovery Education is committed to developing high quality instructional materials for the state of Louisiana. Discovery Education has collected feedback on the Louisiana Grade 4 program over the course of the past three years. In that time period, the content and features of the program have evolved to better meet the needs expressed by pilot teachers and the science curriculum staff of the Louisiana State Department of Education. Feedback on the content and usability of the product focused on improving the instructional intent of phenomenon-based instruction, specifically the inclusion of additional teacher support corresponding to three-dimensional strategies, as well as additional classroom ready components that allow teachers to deliver three-dimensional instruction in a print, blended or digital classroom. The three dimensions (SEP, DCI, CCC) are sequenced across the five-unit bundles in Grade 4 and Disciplinary core ideas build upon one another across the concepts within each unit. Each concept in the Science Techbook purposefully layers

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
			geographic locations of earthquakes by plotting these locations on a map. While looking for Patterns (CCC) in the locations of earthquakes, students build on knowledge from a previous lesson in which they identified major mountains and ocean basins on a map. Students then make a prediction, based on their evidence, as to where three new earthquakes may happen. This activity helps students to recognize that most earthquakes occur in bands that are often along the boundaries between continents and oceans (DCI, UE.ESS2B.a). In Unit 5, Concept 5.3, Activity 7, students engage in Planning and Carrying Out Investigations (SEP) to determine that light can transfer energy (DCI UE.PS3B.b). Students are given a solar-powered object, a thermometer, a radiometer, ice cubes, and various sources of light. They are given time to plan and carry out investigations to see if they can transfer energy using light. Students record their plan and their results in their notebooks to use as evidence that energy can be transferred in various ways (CCC, Energy and Matter).	each dimension, so students can authentically demonstrate the SEPs and CCCs. Students are introduced to grade appropriate phenomena, that are developmentally scaffolded and placed in a logical sequence to facilitate engagement in the three dimensions to drive students toward the instructional focus of each activity. The bolded portions of the aligned standard help teachers recognize the progression of the performance expectation for the activity. Teacher strategies are written to solicit student experiences at the grade appropriate element level of the SEP and/or CCC. A Wonder, Learn, Share student-friendly framework, directly linked to the 5E instructional model, presents students with a comprehensive storyline of activities that help students figure out the science behind the anchor phenomenon of the unit, as well as the investigative phenomenon introduced in the Wonder section of each concept. Across the activity sets in Wonder, Learn, Share, students apply the SEPs and CCCs in the purpose of sensemaking related to the DCI for each concept. Presentation of content, for the purpose of students figuring out the science behind the phenomena, is provided in diverse and a variety of formats including video, images, audio, interactives, virtual labs,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				online models, animations, rich informational text, and more. The updated program includes clear indications of the targeted science and engineering practices and crosscutting concepts within each activity, concept, and unit. These NGSS callout tags, found on the activity cards and in teacher planning materials, allow students and teachers to authentically blend and assess the three dimensions, along with integration of multimedia formats across each concept and unit. Hands-on Activities, already found in the course, facilitate three-dimensional learning experiences for students. Detailed support is provided for teachers to meet and differentiate the grade level expectations for the investigations (Investigate Like a Scientist), design activities (Design Solutions Like a Scientist), and sensemaking activities (Think Like a Scientist). Video support for material intensive investigations is now provided for teachers to assist them in setting up the activity for students. Throughout the program, sample student responses are also included to help teachers better understand the instructional outcome of the activity and to support students with their newly formed ideas. Scripted teacher questions included in point of use teacher notes

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				promote students to communicate their sensemaking with their class and peers. As a valuable lens to support understanding of the DCIs, the Crosscutting Concepts were strengthened by embedding additional questions and teacher strategies as an expectation across activity types. Students harness the power of the CCCs to acquire deeper meaning of scientific ideas within text sections. Additional analysis and conclusion questions, included with Hands-on Activities, support students with extracting CCC ideas. Additional opportunities for students to communicate their sensemaking are also provided through digital technology enhanced items and through discourse activities, indicated with a talk bubble in the activity. Teacher reflection questions, throughout each concept, encourage reflection on students' performance across the three -dimensions.
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.	**NO**	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. The launch of the phenomena, often presented as videos, are, at times, very broad and sometimes include concepts beyond the scope of the Performance Expectations (PE) for 4th grade. In order for students to be successful in developing	The Discovery Education Science Techbook Grade 4 Louisiana program was purposefully designed using expertly crafted phenomenon-based storylines to drive student learning in each unit. Each of the five-unit storylines begins by presenting students with a highly engaging, real-world anchor phenomenon to drive the learning across the unit, and a direct connection to

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
			key science concepts, students may have to rely on the teacher to provide them with questions in order to incrementally make sense of the phenomenon. For example, Unit 1, Car Crashes begins with a 7 minute video about human car crash dummies that demonstrates one way car crashes are studied. The video targets several concepts, some of which align to Grade 6-8 standards. Additionally, at the start of each concept, students are provided a "Can You Explain?" question, followed by a description of what they will be learning during the concept, and then a list of student objectives. This opening structure does not allow students to observe and develop questions about a specific phenomenon in order to make sense of it. The phenomena do not always drive student learning throughout the unit. Although students develop scientific concepts in lessons that follow, student learning and activities are not grounded in the anchor phenomenon. For example, in Unit 2, Energy Resources, the anchor phenomenon is presented as a 6 minute video about the water from Yosemite National Park. Most of the video discusses the beauty of water, how the water is used for vegetation which is shipped all over the world, and the importance of water conservation. The focus of the unit centers around how humans use natural resources	the unit project. Launch activity options for how to elicit students' initial ideas around the anchor phenomena are found in the unit teacher materials. After constructing their questions around the anchor phenomenon, teachers introduce the unit project, which will serve as a real-world application of the disciplinary core ideas of the unit. The initial review from the Louisiana Department of Education indicated that the anchor phenomena of each unit is too broad. Discovery Education acknowledges that the expectation of using real-world phenomena to demonstrate scientific ideas does pose additional challenges of focusing students on the disciplinary core ideas of each unit. Authentic examples of real-world phenomena naturally integrate scientific principles and ideas across the domains of science. Therefore, to further support teachers on how to drive student questions around the intended disciplinary core ideas for each unit, teacher planner tools are now available on the unit course page. After constructing their initial questions around the anchor phenomenon, students dive into sensemaking of the phenomenon within each concept of the unit. Each concept engages students with an investigative phenomenon, in which students uncover a piece of the anchor phenomenon and construct and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
			to produce energy. After the video is presented, the students are asked to consider the energy involved in the water movement. Engaging with the phenomenon is not apparent as the teacher provides questions for the students to think about. The launch of the unit does not create an entry point for students to begin learning without the aid of the teacher generated questions. Furthermore, the video does not provide the purpose and opportunity for the lessons that follow. In the first lesson of Concept 2.1, students are asked to consider how energy is used to power remote-controlled cars and other devices. Although connections can be made about energy, the transition from the anchor phenomenon to the first lesson lacks coherence. Because the video is not strategically connected to the major science ideas of the lesson, students may not be able to focus their learning on uncovering or making sense of a specific phenomenon as they engage in the lessons that follow.	refine an explanation of the investigative phenomena. Students are prompted to generate their own questions around the investigative phenomena, as well as supported with a guiding Can You Explain? Question, in the Wonder portion of the learning sequence. At the activity level, teachers are supported using embedded teacher notes which include research-based instructional strategies. For example, the teacher note found in the second activity in Wonder (Engage) describe how to set up an experience for students to allow the students to generate questions around the investigative phenomena. These strategies help both the teacher and student focus on the components of the phenomenon related to the associate d DCIs for the concept. As students apply the scientific and engineering practices, through the lens of the crosscutting concepts, in the activities found within Learn, they gather evidence and to strengthen their initial explanations of the investigative phenomena and the Can You Explain? Question. Detailed strategies for each activity are provided for teachers to facilitate a three-dimensional learning experience.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				Across each concept, by completing a variety of activity types, students apply the SEPs and CCCs for the purpose of constructing an evidence based scientific explanation. Activity Type headers allow teachers and students to quickly identify opportunities for asking questions related to the phenomenon, communicating sensemaking in a variety of representation options including modeling, and solving problems. • **Ask Questions Like a Scientist:** Students are presented with the investigative phenomenon and expected to generate their own questions to drive their learning in Learn/Explore. • **Observe Like a Scientist:** Students utilize scientific discourse around "Talk Together" questions to communicate their sensemaking. • **Record Evidence Like a Scientist:** Students reason through the evidence they have collected in Learn/Explore to construct and communicate a scientific explanation to one of their own driving questions or the Can You Explain question. • **Design Solutions Like a Scientist:** Students are presented with design challenges and expected to research, design, test and propose solutions.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				• **Investigate Like a Scientist:** Student's design and carry out investigations to gather evidence to support their scientific explanation of phenomena. • **Analyze Like a Scientist:** Students obtain information from scientific text using close reading literacy skills to support other pieces of scientific evidence gathered over the course of the Learn activities. Sample student responses are found within each activity, as well as the final explanation, found in Share, to support teachers in recognizing what students should figure out as they complete the concept activities. Across the program, scaffolds are provided for students constructing explanations around the phenomenon. Students are encouraged to refine their explanations and through the documentation of their initial ideas in Activity 1 of every concept, around the Can You Explain? Question, they can show their growth in learning when forming their scientific explanations in the first activity of Share. Summative performance-based assessments, in addition to the unit project, can be at the concept (Share) and unit level on the Unit page under the Unit Assessments and Resources tab. The assessments items are launched through a platform that mimics

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				other state assessment formats and presents students with an engaging real-world application requiring them to apply their understanding within a new content to demonstrate transfer of learning. Evidence of each of the three dimensions is described in the Teacher guide for each task within the summative assessment. As an authentic summative option, in the unit project, students demonstrate the SEPs and CCCs applied to their newly acquired DCIs for the unit to both science and engineering-based problems and scenarios. Additional tools within the platform such as Assessment Builder, Quiz and Studio give teachers flexibility to create customized assessments. Two of the five-unit projects in the Grade 4 course focus on engineering applications. Science Techbook provides support for teachers at the unit, concept and activity level to help teachers plan and deliver three-dimensional learning experiences. Teacher materials support teachers by providing background information about the phenomena or problems included in the learning sequence, as well as rich instructional strategies on how to facilitate activities so that students apply the three-dimensions to make sense of the investigative and anchor phenomena in the unit. At the unit level, teacher background information describin

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				g how the phenomena connects to the disciplinary core ideas of the unit is provided in the unit planner materials, along with anticipated questions students may ask around each of the phenomena of the unit and how they can use those questions to drive to each concept in the unit. Additional, teacher facing content describing the scientific ideas of the concept are found in the Intro tab for each concept. Teachers are supported throughout each activity using embedded teacher notes. Research based strategies provide teachers with scripted questioning to informally check for understanding and prompt student discourse. Indications of common student misconceptions and sample student responses to formative assessments are also provided within the point-of-use teacher notes. A rich library of additional professional learning content is also available in the Professional Learning center, specifically featuring the McREL aligned Spotlight on Strategies series. Differentiation strategies for approaching learners, advanced learners and English language learners are provided at point-of-use within activities across each concept. Strategies within the teacher notes provide suggested opportunities for students to engage with the platform

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				tools to assist them in accessing content. Tools within the platform provide direct support to students to express their thinking: • **Studio:** Studio is an excellent tool that provides an opportunity for students to demonstrate learning and revisit as they move through learning progression. Templates are provided related to constructing explanations and carrying out investigations. • **Whiteboard:** Allow students to insert images, text and basic shapes to construct their own models to be shared with the teacher or the class. • **Graphic Organizers:** Students are supported in organizing their thinking with editable graphic organizers related to the specific activity. The Beyond tab provides a variety of additional resources that can be used to differentiate by accelerating or remediating as needed. These related resources include the following: videos, Lexile-leveled reading passages, virtual labs, and editable Hands-on Activities/Labs. Both students and teachers also have access to the rich Discovery Education Experience content which includes over 200,000 media assets

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				to support prior knowledge, misconceptions or extend learning opportunities.
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**.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
	Required **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
	3c) In any one grade or course, instructional materials spend minimal time on content outside of the course, grade, or grade-band.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
6. SCAFFOLDING AND SUPPORT: Materials provide teachers with guidance to build their own knowledge and to give all students extensive opportunities and	**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	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
support to explore key concepts using multiple, varied experiences to build scientific thinking. ☐ Yes ☐ No	address them, guidance targeting speaking and writing in the science classroom (e.g. conversation guides, sample scripts, rubrics, exemplar student responses).			
	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.).	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
	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.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
	7c) The total amount of content is **viable** for a school year.	**Not Evaluated**	This section was not evaluated because the non-negotiable criteria were not met.	
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.	**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**.	**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.	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
FINAL EVALUATION ***Tier 1 ratings*** receive a "Yes" for all Non-negotiable Criteria and a "Yes" for each of the Additional Criteria of Superior Quality. ***Tier 2 ratings*** receive a "Yes" for all Non-negotiable Criteria, but at least one "No" for the Additional Criteria of Superior Quality. ***Tier 3 ratings*** receive a "No" for at least one of the Non-negotiable Criteria.				
Compile the results for Sections I and II to make a final decision for the material under review.				
Section	**Criteria**	**Yes/No**	**Final Justification/Comments**	
I: Non-negotiable Criteria of Superior Quality[2]	1. Three-dimensional Learning	**Yes**	The instructional materials are designed so that students develop scientific content knowledge and scientific skills through interacting with the three dimensions of the science standards. The majority of materials integrate the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) to support deeper learning.	
	2. Phenomenon-Based Instruction	**No**	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.	
	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 Quality[3]	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.	

[2] Must score a "Yes" for all Non-negotiable Criteria to receive a Tier I or Tier II rating.
[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	Publisher's Response
FINAL DECISION FOR THIS MATERIAL: **Tier III, Not representing quality**				

Appendix II.

Public Comments

There were no public comments submitted.