

Academic Content

Instructional Materials Evaluation Tool

(IMET) for Alignment in Science Grades K-12 Full Curriculum

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: **[Title]**

Grade/Course: **[Grade/Course]**

Publisher: **[Publisher]**

Copyright: **[Copyright]**

Overall Rating: **[Tier 1, Exemplifies quality; Tier 2, Approaching quality; 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)	
3. Alignment and 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 light orange. 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
<p>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>			
<p>Non-Negotiable 1. THREE-DIMENSIONAL LEARNING:</p> <p>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 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>Non-Negotiable 2. PHENOMENON-BASED INSTRUCTION:</p> <p>Explaining phenomenon and designing solutions drive student learning.</p> <p><input type="checkbox"/> Yes <input 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>Required 2b) Materials are designed to provide sufficient opportunities for students to design and engage in investigations at a level appropriate</p>		

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	<p>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>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>Non-Negotiable 3. ALIGNMENT AND ACCURACY:</p> <p>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>Required 3b) The total amount of content is viable for a school year.</p>		
	<p>Required 3c) Science content is accurate, reflecting the most current and widely accepted explanations.</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>Non-Negotiable 4. DISCIPLINARY LITERACY:</p> <p>Materials have students engage with authentic sources and incorporate</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</p>		

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speaking, reading, and writing to develop scientific literacy. <input type="checkbox"/> Yes <input type="checkbox"/> No	engagement with authentic sources should increase in higher grade levels and courses.		
	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.		
	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.		
	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.		
SECTION II: ADDITIONAL CRITERIA OF SUPERIOR QUALITY			
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A:	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		

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<p><u>Learning Progressions</u>. 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 <u>Louisiana Student Standards for Math</u>.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>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>		
	<p>5b) Students apply grade-appropriate mathematical thinking in meaningful ways, when applicable. They are not introduced to math skills that are beyond or far below the applicable grade level 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>		
<p>6. SCAFFOLDING AND SUPPORT:</p> <p>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.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Required</p> <p>6a) There are separate teacher support materials including: scientific background knowledge, support in three-dimensional learning, learning progressions, strategies for addressing diverse emerging conceptions, guidance targeting speaking and writing in the science classroom (i.e., conversation guides, 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</p> <p>6b) Teacher resources include educative resources that are designed to promote teacher</p>		

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	<p>learning and support the wide range of teachers who use the materials. Unit and lesson planning resources include explicit guidance designed to ensure that students experience phenomena, design solutions, and apply scientific knowledge and skills in ways that are aligned to the Louisiana Student Standards for Science and associated learning progressions.</p>		
	<p>Required 6c) Support for diverse learners, including English Learners and students with disabilities, are provided. Appropriate suggestions and materials are provided for supporting varying student needs at the unit and lesson level using an accelerating learning approach. 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, extension activities, etc.). Materials include teacher guidance to help support special populations and provide the opportunities for these students to meet the expectations of the standards and enable regular progress monitoring.</p>		
<p>7. USABILITY: Materials are easily accessible, promote safety</p>	<p>Required 7a) Text sets (when applicable), laboratory, and other scientific materials are readily accessible through vendor packaging or certified partners.</p>		

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<p>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 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>8. ASSESSMENT:</p> <p>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.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Required 8a) Multiple types of formative and summative assessments (iterative student models, student-centered discussions, data analysis, self-reflection and peer feedback investigations, and projects) are embedded into unit materials and allow teachers to evaluate student progress toward demonstrating standards.</p>		
	<p>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.</p>		
	<p>8c) Scoring guidelines and rubrics align to performance expectations, and incorporate criteria that are specific, observable, and measurable.</p>		
<p>FINAL EVALUATION</p> <p>Tier 1 ratings receive a “Yes” for all Non-Negotiable Criteria and a “Yes” for each of the Additional Criteria of Superior Quality.</p> <p>Tier 2 ratings receive a “Yes” for all Non-Negotiable Criteria, but at least one “No” for the Additional Criteria of Superior Quality.</p> <p>Tier 3 ratings receive a “No” for at least one of the Non-Negotiable Criteria.</p>			
<p>Compile the results for Sections I and II to make a final decision for the material under review.</p>			

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Section	Criteria	Yes/No	Final Justification/Comments
I: Non-Negotiable Criteria of Superior Quality²	1. Three-dimensional Learning		
	2. Phenomenon-Based Instruction		
	3. Alignment and Accuracy		
	4. Disciplinary Literacy		
II: Additional Criteria of Superior Quality³	5. Learning Progressions		
	6. Scaffolding and Support		
	7. Usability		
	8. Assessment		
FINAL DECISION FOR THIS MATERIAL: [Tier 1, Exemplifies quality; Tier 2, Approaching quality; Tier 3, Not representing quality]			

² Must score a “Yes” for all Non-Negotiable Criteria to receive a Tier 1 or Tier 2 rating.

³ Must score a “Yes” for all Additional Criteria of Superior Quality to receive a Tier 1 rating.