DEPARTMENT of EDUCATION
Louisiana Believes

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: **Experience Chemistry**

Grade/Course: **Chemistry**

Publisher: **Savvas Learning Company LLC**

Copyright: **2021**

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
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.	**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 are not integrated to teach the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) in a manner to support deeper learning. Many of the activities presented in the materials aimed at addressing SEPs are not integrated with the content and appear optional. Directions for teachers on how students should apply what they learn from the investigations or how the learning is connected to the information in the student edition materials are limited. These activities are isolated from the student perspective as they must be assigned to allow access and are not referenced in the student materials. For example, in Storyline 1, Investigation 2, Experience 3, Periodic Trends, the student edition asks students to “develop a model” by graphing the periodicity of atomic size vs atomic number using text and bar graphs of the information. This does not provide students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			with an authentic modeling experience and does not include any connection to a Crosscutting Concept. Additionally, there is no mention of the Inquiry Lab referenced in the teacher resources. If teachers choose to assign the Inquiry Lab, the teacher materials provide no guidance for facilitating connections between what students observe in the investigation and what they read in the text. Because the activities aimed at three-dimensionality are isolated, students develop content knowledge predominantly through reading text or direct instruction rather than by interacting with 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. Phenomena do not consistently provide purpose for students to engage in the investigations and lessons throughout the unit as they work towards making sense of the phenomena. The anchor phenomenon is not incorporated throughout the storyline in the majority of the materials and isn't often revisited until the end of the storyline. Additionally, there are minimal connections between the anchoring and investigative phenomena.

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			For example, in Storyline 1, Atoms, Elements, and Molecules, the anchor video shows crystal formation. The Inquiry Launch, Anchoring Phenomenon then displays a picture of a mountain and the question "What distinguishes the minerals in the mountain?" Teachers have little instruction on how to tie the anchor video to the anchor question. This leads to Investigation 1, Investigative Phenomenon in which students watch a video of fireworks, complete a modeling exercise, and answer reflection questions. In Storyline 5, Industrial Applications, students watch the Anchoring Phenomenon video, Energy Transformations, which displays a machine that can pour cereal. Students identify different energy transformations in the video. The teacher then asks questions about the video ending with a question about how the machine could be made more energy efficient. Students then investigate the corrosion of nails in Experience 1, use models of redox reactions in Experience 2, and investigate energy transformations that occur in voltaic and electrolytic cells in Experience 3. The anchoring phenomenon is not revisited until the end of Experience 3 where teachers are prompted to "moderate a discussion in which students share new understandings and evidence that helps explain the ways in which sustainable

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			energy can be used to meet the world's energy demands." No other guidance is provided that supports students in making connections between the anchor phenomenon and the investigative phenomena across the storyline. Additionally, the anchoring phenomenon does not create an entry point for students to engage in learning. As students watch the provided investigative phenomena videos, they are prompted to answer questions, but not create their own. Students miss the opportunity to make sense of the phenomenon through inquiry and discovery.
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.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
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.
Section II: Additional Criteria of Superior Quality			

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
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	**No**	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 the materials do not teach the Science and

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

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			Engineering Practices (SEP), Crosscutting Concepts (CCC) and Disciplinary Core Ideas (DCI) separately when necessary but they are most often not integrated 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. Phenomena do not consistently provide purpose for students to engage in the investigations and lessons throughout the unit as they work towards figuring out the phenomenon. The anchor phenomenon is not incorporated throughout the storyline in the majority of the materials and isn't often revisited until the end of the storyline. Additionally, there are minimal connections between the anchoring and investigative 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 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.

[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
FINAL DECISION FOR THIS MATERIAL: **Tier III, Not representing quality**			

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

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

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

The 2020-2021 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: Acadia, Ascension, Beauregard, Bossier, Caddo, Calcasieu, City of Monroe, Claiborne, Diocese of Alexandria, East Baton Rouge, Evangeline, Firstline Schools, Iberia, Iberville, Jefferson, Jefferson Davis, Jefferson Parish Charter, KIPP, Lafayette, Lafourche, Lincoln, Livingston, Louisiana Tech University, Louisiana Virtual Charter Academy, Lusher Charter School, Natchitoches, Orleans, Ouachita, Plaquemines, Pointe Coupee, Rapides, Richland, Special School District, St. Charles, St. Landry, St. Tammany, Tangipahoa, Tensas, Vermillion, Vernon, West Feliciana, and Zachary Community. This review represents the work of current classroom teachers with experience in grades 9-12.

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: **Experience Chemistry**

Grade/Course: **Chemistry**

Publisher: **Savvas Learning Company LLC**

Copyright: **2021**

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**.

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

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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.	**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 are not integrated to teach the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC), and Disciplinary Core Ideas (DCI) in a manner to support deeper learning. Many of the activities presented in the materials aimed at addressing SEPs are not integrated with the content and appear optional. Directions for teachers on how students should apply what they learn from the investigations or how the learning is connected to the information in the student edition materials are limited. These activities are isolated from the student perspective as they must be assigned to allow access and are not referenced in the student materials. For example, in Storyline 1, Investigation 2, Experience 3, Periodic Trends, the student edition asks students to "develop a model" by graphing the periodicity of atomic size vs atomic number using text and bar graphs of the information. This does not provide students	**Note: Click HERE to download a PDF file containing referenced images and screenshots.** **Response to 1st Para.** The instructional materials in *Experience Chemistry* are specifically designed so that students develop scientific content knowledge and skills through interacting with the three dimensions of the science standards. Across the Storyline, Investigation, and Experience levels, the activities in *Experience Chemistry* integrate and continually build upon one another, providing consistent opportunities for students to engage in the Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs). Please see the Teacher Guide correlation pages (TG, Vol. 1, pp. T48–T69) for examples of three-dimensionally aligned *Experience Chemistry* resources, organized by standard. Additionally, please refer to the planners and point-of-use support in the Teacher Guide for examples of instructional supports that emphasize integration of

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
			with an authentic modeling experience and does not include any connection to a Crosscutting Concept. Additionally, there is no mention of the Inquiry Lab referenced in the teacher resources. If teachers choose to assign the Inquiry Lab, the teacher materials provide no guidance for facilitating connections between what students observe in the investigation and what they read in the text. Because the activities aimed at three-dimensionality are isolated, students develop content knowledge predominantly through reading text or direct instruction rather than by interacting with the three dimensions.	SEPs, CCCs, and DCIs. Some examples from Storyline 1, Investigation 1, and Experience 1-1: ● Storyline 1 Planner (TG, Vol. 1, pp. 2–3): calls attention to integration of CCC-1 Patterns and PS1.A Structure and Properties of Matter. Link. ● Storyline 1 teacher support (TG, Vol. 1, pp. 4–5): Points of Integration support, for making connections to DCIs from other disciplinary areas. Link ● Investigation 1 Planner (TG, Vol. 1, pp. 6–7): calls attention to integration of CCC-5 Energy and Matter and PS1.A Structure and Properties of Matter. Link ● Investigation 1 teacher support (TG, Vol. 1, pp. 8–9): Learning Progression support calls attention to integration of SEP-2 Developing and Using Models, SEP-4 Analyzing and Interpreting Data, and SEP-5 Using Computational Thinking; CCC-1 Patterns; and PS1.A Structure and Properties of Matter. Link ● Experience 1-1 teacher support (TG, Vol. 1, pp. 11): Inquiry Lab support calls out integration of SEP-3 Planning and Carrying Out Investigations; Analyzing Data worksheet calls out integration of SEP-4 and CCC-1; and Integrate the Three Dimensions support describes how students can

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				interact with SEPs, CCCs, and DCIs during the Inquiry Lab activity. TG Link, Inquiry Lab Link, Analyzing Data Link To access above links, please login at savvasrealize.com. UN: LA_Review2020 PW: Experienceit1 ***See Images 1-1 to 1-9.*** **Response to 2nd Para., Sentences 1-3:** The structure of the *Experience Chemistry* program is a blended learning environment, combining the student use of both digital and print experiences, based on the 5E instructional model (Engage, Explore, Explain, Elaborate, Evaluate). Savvas includes at least one "core" student activity for each stage of the model; these activities are designed to (i) integrate as a whole, in order to deepen student understanding, and (ii) integrate Science and Engineering Practices (SEPs) with core ideas and crosscutting concepts. At the Experience (or lesson) level, for example, there is a range of core activities that are supplemented by optional "Got More Time" activities: ● Engage: Teacher Guide Demo (core activity) ● Explore:

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				- Inquiry Lab worksheet (core activity) - Analyzing Data worksheet, Virtual Lab, or Digital Interactivity (optional "Got More Time" activity) ● Explain: - Claim-Evidence Reasoning or Modeling worksheet (core activity) - Experience Notebook (core activity) - Animation (optional) ● Elaborate: - Discussion or Peer-Review Rubric (core activity) - Engineering Design Challenge, Writing About Science, or Analyzing Data worksheet (optional) ● Evaluate: - Quiz (core activity) - Experience Notebook (core activity) To access below links, please login at savvasrealize.com. UN: LA_Review2020 PW: Experienceit1 Teachers can refer to the Investigation Planner pages of the Teacher Guide for an at-a-glance breakdown of the 5E-aligned student activities in each Experience: Investigation 4 Teacher Planner, page 108-109. Link ***See Image 1-10.*** * Notice in the Investigation 4 Planner, 17 activities are marked with the green "Got

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				More Time" icon that indicates an optional / additional activities. The remaining 49 activities are part of the core curriculum. ***See Images 1-11 & 1-12.*** For students, the selection of activities outlined above is readily accessible when they are logged into the Realize platform. Example Screenshot of Realize TOC of Investigation 4, Experience 1. This is the default view, alternative versions of the lab (guided/advanced short) or additional assessments/remediation would appear as assigned by instructor: ***See Images 1-13 & 1-14..*** The activities in the instructional sequence above are not intended to be performed in isolation. Rather, they are designed to build upon one another as students move between the online and print environments and provide meaningful opportunities for students to engage in SEPs and evaluate their understandings through the lens of CCCs. The guidance for how teachers should implement these activities within the 5E model and cultivate student engagement is provided in the Teacher Guide, in the Investigation Planners as well as in the point-of-use support for each resource.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				Response to Example, 2nd Para., Sentences 4-5: A key aspect of engaging in SEP-2 (Developing and Using Models) is to move flexibly between different models. In Experience 2-3 of the Student Experience Notebook, Question 12 (SEN, Vol. 1, p. 57 Link) asks students to plot atomic size versus atomic number on a line graph. This is one type of model for visualizing element data; as students progress through Experience 2-3, they will use and develop *other models*—including bar graphs, diagrams, and data tables—to visualize the patterns that are embedded in the design of the periodic table. When put in the context of the entire Experience, the graphing exercise on p. 57 does contribute to providing an authentic modeling experience for the student. ***See Image 1-15.*** The same exercise (SEN, Vol. 1, p. 57 Link) also integrates crosscutting concepts; as outlined in the Teacher Guide support for this page of the Student Experience Notebook (please see TG, Vol. 1, p. 61 Link), students draw connections to CCC-1 (Patterns). In addition, prior to reading the Student Experience Notebook text, students would have participated in the

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				following activities to reinforce the connection between patterns and developing a predictive model: ● Engage: - Salt Bubbles (Teacher Guide Demo): students observe levels of reactivity in two different salts. ● Explore: - Periodic Trends and Properties (Inquiry Lab): students determine trends in the activity and solubility of Group 2 metals and their salts. - Predict Reactivity Using Periodic Trends (Virtual Lab): students make predictions about the reactivity of halogens. (These activities are mapped out in the Investigation 2 Planner; please refer to TG, Vol. 1, p. 43.) ***See Images 1-16 to 1-19.*** Again, we would like to emphasize that the print Student Experience Notebook is not to be thought of as a standalone curriculum; it is intended to be actively integrated with the other components of the program (online, hands-on) in order to facilitate connections among the practices, crosscutting concepts, and core ideas. **Response to 2nd Para., Sentences 6-7:**

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				Each Inquiry Lab in the *Experience Chemistry* program is accompanied by a Lab Summary Video link that is mentioned in the Teacher Guide support for the lab. The purpose of the Lab Summary Video is to help facilitate connections between the lab results and the Investigative Phenomenon. (Please see TG, Vol. 1, p. 59, link for an example of a reference to the Lab Summary Video in the teacher support). ***See Images 1-20 & 1-21.***
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. Phenomena do not consistently provide purpose for students to engage in the investigations and lessons throughout the unit as they work towards making sense of the phenomena. The anchor phenomenon is not incorporated throughout the storyline in the majority of the materials and isn't often revisited until the end of the storyline. Additionally, there are minimal connections between the anchoring and investigative phenomena. For example, in Storyline 1, Atoms, Elements, and Molecules, the anchor video shows crystal formation. The Inquiry Launch, Anchoring Phenomenon then displays a picture of a mountain and the	**Note: Click HERE to download a PDF file containing referenced images and screenshots.** To access below links, please login at savvasrealize.com. UN: LA_Review2020 PW: Experienceit1 **Response to 1st Para.** *Experience Chemistry* provides ample opportunities for students to engage in rigorous phenomenon-based learning. Students are challenged to make sense of various observable phenomena and to refine their explanations as they develop new understandings about the structure and properties of matter, chemical and physical changes, and energy transfer. Please see the Teacher Guide, Vol. 1, p. T14, link for a summary of how the Anchoring Phenomena, Investigative Phenomena, and Everyday Phenomena drive the

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			question "What distinguishes the minerals in the mountain?" Teachers have little instruction on how to tie the anchor video to the anchor question. This leads to Investigation 1, Investigative Phenomenon in which students watch a video of fireworks, complete a modeling exercise, and answer reflection questions. In Storyline 5, Industrial Applications, students watch the Anchoring Phenomenon video, Energy Transformations, which displays a machine that can pour cereal. Students identify different energy transformations in the video. The teacher then asks questions about the video ending with a question about how the machine could be made more energy efficient. Students then investigate the corrosion of nails in Experience 1, use models of redox reactions in Experience 2, and investigate energy transformations that occur in voltaic and electrolytic cells in Experience 3. The anchoring phenomenon is not revisited until the end of Experience 3 where teachers are prompted to "moderate a discussion in which students share new understandings and evidence that helps explain the ways in which sustainable energy can be used to meet the world's energy demands." No other guidance is provided that supports students in making connections between the anchor phenomenon and the investigative phenomena across the storyline.	organization of the instruction in *Experience Chemistry*. ***See Image 2-1.*** *Experience Chemistry* also provides frequent opportunities for students to engage in the engineering design process. Please refer to the correlated activities list for SEP-6 (Designing Solutions) provided in the Teacher Guide, Vol. 1, p. T73, link for examples ***See Image 2-2.*** **Response to 2nd Para.** Each component Investigation (or chapter) within a given Storyline (or unit) concludes with a question prompt to "Revisit the Anchoring Phenomenon." In addition, the Investigative Phenomena explored at the Investigation level are designed to support the questioning/sensemaking protocol required for the Anchoring Phenomenon that is introduced at the Storyline level. So, the instructional points of connection to Anchoring Phenomena are embedded consistently throughout the program. Three additional features of the *Experience Chemistry* program help to support phenomenon-based learning:

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			Additionally, the anchoring phenomenon does not create an entry point for students to engage in learning. As students watch the provided investigative phenomena videos, they are prompted to answer questions, but not create their own. Students miss the opportunity to make sense of the phenomenon through inquiry and discovery.	● Connection to the Anchoring Phenomenon (1 per Storyline): this section of the Storyline Planner helps reinforce how the Investigation content connects to the Anchoring Phenomenon. (Please see Teacher Guide, Vol. 1, pp. 2–3 for an example.) Link ● Problem-Based Learning Experience (1 per Storyline, link): this activity, which can be assigned at any point during the Storyline, offers another opportunity for students to engage with the Anchoring Phenomenon and pursue a compelling line of inquiry. (Please see TG, Vol. 1, p. 5 for an example of teacher support for this resource.) link ● Related Phenomena (1 per Storyline, 1 per Investigation, and 1 per Experience link): This instructional strategy/support, which appears throughout the Teacher Guide, provides teachers with alternatives to use for Anchoring, Investigative, and Everyday Phenomena. (Please see TG, Vol. 1, p. T14 link for a visual summary of how these phenomena are layered in the program.) We realize that teachers may want to try out different examples of anchoring events that effectively drive learning. ***See Image 2-3 to 2-5.***

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
				Response to Example, 3rd Para. The Anchoring Phenomenon Video of NaCl crystallization and the Student Experience Notebook photo of Peru's Rainbow Mountains are both vivid examples showing how the structure of matter determines its properties. The progression of Investigations 1–3 in Storyline 1 is designed so that students learn to differentiate atoms of elements before they learn to differentiate chemical bonds and compounds; this point is articulated in the Connection to the Anchoring Phenomenon section of the Storyline 1 Planner (please see Teacher Guide, Vol. 1, pp. 2–3 Link). The Teacher Guide also explains that the Investigation 1 Investigative Phenomenon Video (of fireworks) is intended to provide an entry point for investigating atomic structure (TG, Vol. 1, p. 8 link). ***See Image 2-6 to 2-11.*** **Response to 3rd Para., Sentences 1-6:** The instructional sequence of Investigation 15 Oxidation-Reduction Reactions is designed to logically progress from Experience 1 Oxidation vs. Reduction toward Experience 3 Electrochemical Cells. As students unpack the Investigative Phenomenon question of "How do batteries store energy?," link they consider

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				the design criteria for voltaic cells in the Inquiry Lab (Build a Micro Battery) link and in the Performance-Based Assessment activity (Battery Challenge) link. The purpose of the Revisit the Anchoring Phenomenon question at the end of Investigation 15 link is to circle back to the idea of sustainability (which includes energy efficiency), and how this criterion might be integrated into the design of energy storage technologies. ***See Image 2-12 to 2-14.*** **Response to 3rd Para., Sentence 8:** *Experience Chemistry* provides frequent opportunities for students to engage in SEP-1 Asking Questions. For example, in Investigation 1 of the Teacher Guide, the teacher support for the Investigative Phenomenon Video mentions the following: "Have students share their observations with a partner. While they are sharing, have each pair come up with one question from the video that their observations prompted. Call on each pair to share their question and the observation(s) that prompted them" (see TG, Vol. 1, p. 9). Link ***See Image 2-15.***

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				Additionally, the accompanying activity for each Investigative Phenomenon is either a Discuss the Phenomenon worksheet or a Model the Phenomenon worksheet Link. For each Discuss the Phenomenon worksheet, the first question asks students to pose a question about the Investigative Phenomenon. ***See Image 2-16.***
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	**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.	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
writing to develop scientific literacy. ☐ Yes ☐ No	**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.	
Section II: Additional Criteria of Superior Quality				
5. LEARNING PROGRESSIONS: The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the Louisiana Student Standards for Math.	**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.	**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
☐ Yes ☐ No	Preferably, **math connections** are made explicit through clear references to the math standards, specifically in teacher materials.			
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 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.	

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES	Publisher's Response
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	**No**	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 the materials do not teach the Science and Engineering Practices (SEP), Crosscutting Concepts (CCC) and Disciplinary Core Ideas (DCI) separately when necessary but they are most often not integrated to support deeper learning.	Click or tap here to enter text.
	2. Phenomenon-Based Instruction	**No**	Observing and explaining phenomena and designing solutions do not provide the purpose and opportunity for students to	Click or tap here to enter text.

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

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			engage in learning a majority of the time. Phenomena do not consistently provide purpose for students to engage in the investigations and lessons throughout the unit as they work towards figuring out the phenomenon. The anchor phenomenon is not incorporated throughout the storyline in the majority of the materials and isn't often revisited until the end of the storyline. Additionally, there are minimal connections between the anchoring and investigative 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 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.

Appendix II.

Public Comments

There were no public comments submitted.