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: **IQWST™**

Grade/Course: **6-8**

Publisher: **Activate Learning, LLC**

Copyright: **2018**

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

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

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

Each set of submitted materials was evaluated for alignment with the standards beginning with a review of the indicators for the non-negotiable criteria. If those criteria were met, a review of the other criteria ensued.

Tier 1 ratings received a "Yes" for all Criteria 1-8.
Tier 2 ratings received a "Yes" for all non-negotiable criteria, but at least one "No" for the remaining criteria.
Tier 3 ratings received a "No" for at least one of the non-negotiable criteria.

Click below for complete grade-level reviews:

Grade 6 (Tier 1) Grade 7 (Tier 1) Grade 8 (Tier 1)

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: **IQWST™**

Grade/Course: **6**

Publisher: **Activate Learning, LLC**

Copyright: **2018**

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

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

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

To evaluate each set of submitted materials for alignment with the standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicator in Column 2, then the materials receive a "No" in Column 1. Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria in order for the review to continue to Section II.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria 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, crosscutting concepts and disciplinary core ideas separately when necessary but they are most often integrated to support deeper learning.	**Yes**	The instructional materials are designed so that students can develop scientific skills by interacting with the three dimensions of the science standards. The three dimensions are integrated in the majority of lessons, and students have multiple opportunities to practice and apply their understanding of them for deeper learning. In the Physical Science unit, "How Will It Move?", Lesson 2, students are not only introduced to scientific information through the text, "Balance and Forces," but also through hands-on activities. Throughout the unit lessons, students plan and carry out investigations which is a Science and Engineering Practice (SEP). In Lesson 7, students analyze a ball's and a marble's response to forces acting upon them. Students roll a marble through a metal spiral and apply various forces onto it. They then analyze specific scenarios to make broader generalizations about forces and how things move. Through this lesson, students build scientific understanding of the Disciplinary Core Idea (DCI) related to PS2A force and motion, the Crosscutting Concept (CCC) of cause and effect, and the SEP of developing and using models. Three-dimensional teaching and learning is consistent across the majority of the materials through embedded investigations, experiments, and other activities. In the Life Science unit, "Where Have All The Creatures Gone?" Lesson 9 requires students to use a computer program to model competition for resources. Students use their observations to begin formulating thoughts around the effect that an invasive species can have on a population. Through this lesson, students engage in practice with the DCI of interdependent relationships in ecosystems, the CCC of cause and effect, and the SEP of analyzing and interpreting data.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Non-Negotiable **2. PHENOMENON-BASED INSTRUCTION:** Explaining phenomenon and designing solutions drive student learning. ☒ Yes ☐ No	**REQUIRED** **2a)** Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time.	**Yes**	Observing and explaining phenomena and designing solutions in these materials provides the purpose and opportunity for students to engage in learning. Each major unit includes an anchor phenomenon in the form of a common experience and driving questions that motivate learning about the core ideas of the unit. Each lesson includes an investigative phenomenon that ties back to the larger anchor phenomenon. Throughout each unit, students stop at key checkpoints and refer back to the driving question to consider how their ideas about the phenomena have grown and changed as a result of their investigation. For example, in the Life Science unit, "Where Have All The Creatures Gone?", the anchor phenomenon is introduced as a problem scenario with the driving question "What Causes Populations To Change?" for student consideration. Students are introduced to a mystery about an unexplained change in the population of trout in the Great Lakes. Throughout the unit, students engage in three-dimensional learning experiences to uncover pieces of information that are used as clues to help solve the mystery. By the end of the unit, students develop and argue a claim on whether specific biotic or abiotic factors affected the trout population. Students also manipulate the phenomenon and ask their own questions. In the Physical Science unit, "How Will It Move?" the anchor phenomenon is first introduced in Activity 1.1. Students observe and manipulate a magnetic cannon. The magnetic cannon serves as a shared experience to motivate learning and spark investigative questions. Students revisit this phenomenon in Lesson 8 where they explain the behavior of the magnetic cannon using the scientific principles of force and motion.
Non-Negotiable (only reviewed if criteria 1 and 2 are met) **3. ALIGNMENT & ACCURACY:**	**REQUIRED** **3a)** The majority of the Louisiana Student Standards for Science are incorporated, to the full **depth of the standards**.	**Yes**	Within the three curricular units: PS3: How Will it Move?, PS1: Can I Believe My Eyes?, and LS1: Where Have All the Creatures Gone?, the majority of the sixth grade Louisiana Student Standards for Science are incorporated to the full depth of the standard. The standards, 6-MS-LS1-1 and 6-MS-LS1-2 are only

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Materials adequately address the Louisiana Student Standards for Science. ☒ Yes ☐ No			partially addressed by these units and are both more fully addressed in the seventh grade curricular Life Science unit, "What is Going on Inside Me?" The standard 6-MS-PS3-1 is partially addressed in the Physical Science Unit, "How Will it Move?" and is also addressed in the eighth grade Intro to Chemistry unit, "How Can I Make New Stuff From Old Stuff?" Similarly, 6-MS-PS1-1 is covered more fully in the seventh grade Intro to Chemistry units, "How does Food Provide My Body with Energy?" and "How Can I Smell Things From a Distance?"
	REQUIRED **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	The science content in this grade is accurate and reflects the current and widely accepted explanations. There is no evidence of inaccurate content.
	3c) In any one grade or course, instructional materials spend minimal time on content outside of the course, grade, or grade-band.	**Yes**	Minimal time is spent on content that is outside of this grade. Lessons found within units are organized to build knowledge and maximize the building of foundation for the Science and Engineering Practices required for each standard. The Life Science unit "Where Have All the Creatures Gone? " addresses additional standards within the grade band but beyond this grade. Overall, there is minimal evidence of time spent outside of the course, grade or grade-band.
Non-Negotiable (only reviewed if criteria 1 and 2 are met) **4. DISCIPLINARY LITERACY:** Materials have students engage with authentic sources and incorporate speaking, reading, and writing to develop scientific literacy. ☒ Yes ☐ No	**REQUIRED *Indicator for grades 4-12 only** **4a)** Students regularly engage with **authentic sources** that represent the language and style that is used and produced by scientists; e.g., journal excerpts, authentic data, photographs, sections of lab reports, and media releases of current science research. Frequency of engagement with authentic sources should increase in higher grade levels and courses.	**Yes**	Students regularly engage with authentic sources that represent the language and style used and produced by scientists. For example, in the Life Science unit, "Where Have All The Creatures Gone?", students interact with a variety of authentic sources. In Lesson 1, students interact with a historic photograph of George Washington Carver, a map of Alaska and Canada, and multiple photographs of organisms or results of organisms' influence on their environment. Students use these sources to collect data. In Lesson 2 of the Physical Science unit, "Can I Believe My Eyes?", students are exposed to authentic images that relate directly to forces and balance. Homework assignments require students to create a data chart for reporting. In Lesson 7, Activity 7.2, students conduct an investigation that outlines a repetition of procedures with differing

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			variables, assisting them in building a lab report with data. In Lesson 2 of the Physical Science unit, "How Will It Move?", the authentic photographs of demonstration set-ups and in Lesson 4, "Measuring Forces", the activity to present data tables and data-based questions support the language and style used and produced by scientists.
	REQUIRED **4b)** Students regularly engage in **speaking and writing** about scientific phenomena and engineering solutions using authentic science sources; e.g., authentic data, models, lab investigations, or journal excerpts. Materials address the necessity of using **scientific evidence** to support scientific ideas.	**Yes**	Students regularly engage in speaking and writing about scientific phenomena. All lessons provide an opportunity for students to write before and/ or after exploration. Extension activities create space for students to discuss their findings in order to enhance their ability to communicate the activity outcomes and data. Students provide evidence within their writing and reasoning to justify their responses. The Lesson 4, "How Strong is That Force?", writing activity is based on the question "What can you say about the relationship between two contact forces with regards to their direction and magnitudes?" Such questions require students to use their laboratory evidence and impact their disciplinary literacy. Students also use evidence and authentic sources to support their ideas. In the Life Science unit, "Where Have All The Creatures Gone?", students make initial predictions and collect observation field notes in an authentic way. By the end of the unit, students write a claim about why a population has changed. They support this claim using scientific principles as well as evidence that is not based on opinion. In the Physical Science unit, "Can I Believe My Eyes?", students measure the amount of light transmitted by a variety of objects. They are provided with an authentic data table for data collection. At the end, students complete the "Making Sense" activity in which they compare their initial prediction with the data in their table. There is an emphasis on using scientific evidence to support scientific ideas.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	REQUIRED **4c)** There is **variability** in the tasks that students are required to execute. For example, students are asked to produce solutions to problems, models of phenomena, explanations of theory development, and conclusions from investigations.	**Yes**	There is variability throughout the lessons in each unit. In Lesson 2 of the Physical Science unit, "Can I Believe My Eyes?", students answer probing questions and gather evidence from a simple experiment. In Lesson 5, students use models to explain phenomena and their observations. In Lesson 7, students evaluate, measure, and revise a light model. There is variability in the tasks between each unit. In the Physical Science unit, "How Will It Move?", students begin by recording real-world observations of a habitat in a field note journal. In Lesson 7 students dissect a sea lamprey that could be a cause of the decrease in the trout population. The culminating task requires students to complete an independent research project that supports a claim through evidence. In the Life Science unit, "Where Have All The Creatures Gone?", students begin Lesson 2 by analyzing a population graph. They later model a food web using yarn to gain a better understanding of how species are connected. By Lesson 13, students use evidence to develop conclusions that answer the driving questions. Components in the unit are varied and require multiple learning modalities. The variation in tasks create connections among the three dimensions of the science standards and ensure content depth and mastery.
	4d) Materials provide a coherent sequence of authentic science sources that build scientific **vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	Each lesson provides the introduction to, and use of, vocabulary words to build comprehension. The readings, discussions, and investigations introduce new vocabulary terms and apply them within the context of learning. In Activity 2 of "How Will It Move?" students explore three non-contact forces. Through exploration, students observe and discover the knowledge behind the vocabulary words. In Lesson 6 of the Physical Science unit, "Can I Believe My Eyes?", the discussion of scattering and reflection of light is used to create a foundation for understanding the absorption of light which is discussed in Lesson 8. In Lesson 12 the discussion on Infrared Light and Wave Model introduces students to UV and Nonvisible light that is later addressed in

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Lesson 13. The vocabulary is also used during writings and explanations within other activities throughout the unit. For example, in the Life Science unit, "Where Have All The Creatures Gone?", students apply the words biotic and abiotic. However, they are introduced to these words within the context of examples of biotic and abiotic factors, which allows them to arrive at their meanings. Vocabulary is not taught in isolation and is developed authentically to deepen understanding.
SECTION II: ADDITIONAL INDICATORS OF QUALITY			
Additional Criterion **5. LEARNING PROGRESSIONS:** The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the the Louisiana Student Standards for Math. ☒ Yes ☐ No	**REQUIRED** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The lessons within each unit are organized to support learning through a natural progression. Students are exposed to various levels of rigor as lessons build upon one another in complexity. This allows the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts while also preventing misunderstanding. For example, the Physical Science unit, "How Will it Move?", begins with an anchoring activity where students observe a magnetic cannon. The lessons introduce new concepts such as "balanced" and "unbalanced" forces and gradually build in rigor and complexity until students have acquired a robust understanding of forces and motion. In Lesson 8, students apply their understanding to explain the behavior of the magnetic cannon, which supports the performance expectation. In the Physical Science unit, "Can I Believe My Eyes?", there is evidence of organizational progression. With the embedded readings between two related concepts that differ in difficulty, students are able to explore and gain understanding before moving to a task that naturally build upon the learning. In the Life Science unit, "Where Have All The Creatures Gone?", students make simple observations of organisms and their environment. In Lesson 2, students are presented with a mystery and explore why the trout population has changed. Throughout the unit, students encounter readings that provide them with context on the requirements of living things and on how biotic and abiotic factors might affect a

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			population or ecosystem. Student learning culminates in a research project where they independently investigate a changing population and produce claims that are supported by evidence for the changes. These logical progressions of complexity support the rigor of the performance expectations.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's expectations in the Louisiana Student Standards for Mathematics. Preferably, **math connections** are made explicit through clear references to the math standards, specifically in teacher materials.	**Yes**	When applicable, students engage in mathematical thinking that is appropriate for their grade level. For example, in Lesson 4 of the Physical Science unit, "How Will it Move?", students record mass and display the results in a data table and then perform simple calculations to determine averages. If students have not had experience calculating the average of a data set, teachers are expected to teach this process as directed in the "Teacher Tools." Each unit provides opportunities for the cross-curricular incorporation of mathematics. In Lesson 3 of the "Can I Believe My Eyes?" unit students learn to conceptualize the speed of light. While students do not compute these values, the mathematical thinking of Galileo is presented. Reference to proportions is also made, which supports the grade level standards. Lesson 11 of the Life Science unit, "Where Have All The Creatures Gone?", supports mathematical thinking as students determine reasons for population change. In Activity 11.1 students test surface types that worms prefer. Students calculate simple totals in a data table and are able to apply this math to a broader understanding of how changes in one aspect of an ecosystem can make a population increase or decrease. Math connections are not made explicitly through references to the standards, but there are authentic opportunities for students to apply mathematical thinking in the context of the units.
Additional Criterion **6. SCAFFOLDING AND SUPPORT:** Materials provide teachers with guidance to build their own knowledge and to give all students	**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	**Yes**	The support materials for teachers are comprehensive and robust with a variety of components for each lesson and unit. All lessons provide support to teachers through the "Teacher Tools" and the IQWST overview books. Lesson preparation materials include lesson setup, safety

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
extensive opportunities and 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 (i.e. conversation guides, sample scripts, rubrics, exemplar student responses).		guidelines, suggestions for differentiation, and materials needed to teach each lesson. Also included are documents showing which standards are addressed and guidance for teaching each lesson. The IQWST overview books provide guidance on strategies for supporting reading and writing in science and ways to build coherence, as well as ways to support three-dimensional learning. The "Teacher Tools" offer support that promote effective teaching for each lesson and equips teachers with the depth of understanding required for them to implement the curriculum as intended.
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. "Teacher Tools" provide appropriate suggestions and materials for differentiated instruction. Each unit provides differentiation strategies which can be found in the "Lesson Preparation" section of the "Teacher Tools." In this section, there are suggestions for how to differentiate various components of the lesson. For example, the "Differentiation" section of Lesson 2 of the Physical Science unit, "How Will It Move?", suggests that students experience the lesson with multiple means of engagement. It provides suggestions for incorporating hands-on experiences for multiple types of learners. The Physical Science unit, "Can I Believe My Eyes?", provides suggestions for common student difficulties such as pre-identifying the challenging language within each reading and introducing new vocabulary words. Suggestions for the English-language learner in the Life Science unit, "Where Have All The Creatures Gone?", support different types of learners in the completion of their culminating research project, such as assigning student roles and jigsaw groups that will make each student successful. Differentiation is also evident in the setup of each lesson. Teachers can adjust activities to address various learning levels and also use audio readings for each lesson.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Additional Criterion **7. USABILITY:** Materials are easily accessible, promote safety in the science classroom, and are viable for implementation given the length of a school year. ☒ Yes ☐ No	**REQUIRED** **7a)** Text sets (when applicable), laboratory, and other scientific materials are **readily accessible** through vendor packaging.	**Yes**	All materials are readily accessible. The digital platform provides all texts, labs, assessments, and other student academic materials. All of these digital materials are located in one centralized location and are user-friendly.
	7b) Materials help students build an understanding of standard operating procedures in a science laboratory and include **safety** guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the curriculum.	**Yes**	These materials include laboratory safety guidelines for procedures and for using the equipment. The materials in each unit help students build an understanding of standard operating procedures in a science laboratory. Within the "Lesson Preparation" section of the "Teacher Tools" there is a tab for "Safety Guidelines." Activities that require investigations include step-by-step outlines. General laboratory safety information can also be found in the "IQWST Overview."
	7c) The total amount of content is **viable** for a school year.	**Yes**	The amount of content for each standard addressed is viable for the school year. The unit calendar, referenced in "Teacher Tools," provides the specific number of class periods needed to complete the unit. There are also opportunities for extension activities to help deepen student understanding of the content for those teachers who have longer class periods or need additional material.
Additional Criterion **8. ASSESSMENT:** Materials offer assessment opportunities that genuinely measure progress and elicit direct, observable evidence of the degree to which students can independently demonstrate the assessed standards. ☒ Yes ☐ No	**REQUIRED** **8a) Multiple types** of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Throughout each unit, students encounter multiple types of assessments, both formative and summative. Lessons require students to write, investigate, create models, draw, and express arguments. In Lesson 3 of the Physical Science unit, "How Will It Move?", students construct a model. The Teacher Edition suggests that this model can serve as a formative assessment to show that students understand why objects move in a certain direction. In Lesson 5 of the Physical Science unit, "Can I Believe My Eyes?", students read the text, "When Can You See Shadows Like This in Other Places?". The Teacher Edition suggests that the questions at the end of this reading can serve as a summative assessment of the lesson. The Life Science unit, "Where Have All The Creatures Gone?", culminates with a research project. The Teacher Edition provides multiple opportunities for both group and individual assessments. There is

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			variety in assessments. Formative and summative assessments are found in the "Teacher Tools" section for each lesson. Additionally, there is a test bank of multiple-choice and constructed response items that teachers can use for formative or summative assessment. These assessments measure student progress towards, and mastery of, the learning targets.
	REQUIRED **8b)** Assessment items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on the integration of the three dimensions of the science standards. For example, in the "How Will it Move?" unit, the homework assignment has students draw motion graphs based on their experiences and data from the "Magnetic Cannon." This assignment incorporates the DCI related to force and motion, the CCC of scale, proportion and quantity, and the SEP of analyzing and interpreting data. In the Physical Science unit, "Can I Believe My Eyes?", students generate their own questions about light and optics. This supports the DCIs, with the SEP for evaluating and communicating information emphasized authentically in an integrated fashion. In the "Where Have All The Creatures Gone?" unit, students construct an argument that is supported with evidence to show that changes to an ecosystem affect populations. This not only supports the DCIs, but also the integration of the SEP for engaging in argument from evidence and the CCCs of stability and change, and cause and effect.
	8c) Scoring guidelines and rubrics **align** to performance expectations, and incorporate criteria that are specific, observable, and measurable.	**Yes**	The scoring guidelines support the teachers' objective assessment of students and incorporate criteria that are specific, observable, and measurable. The scoring guidelines and rubrics align with performance expectations. Each lesson provides guidance for activities such as rubrics, visual examples of setup, as well as exemplars. In the Physical Science unit, "How Will it Move?", specific student outcomes can be found in the "Lesson Overview" section. These outcomes are specific, observable, and measurable. In the Physical Science unit, "Can I Believe My Eyes?", evaluation criteria for models can be found in the "Unit

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Resources" file. This guidance document supports teachers in the observation and evaluation of student models created in the lessons. In the "Where Have All The Creatures Gone?" a scoring rubric can be found in the "Unit Resources" file which helps teachers assess student claims and supporting evidence.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.

Tier 3 ratings receive a "No" in Column 1 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-Negotiables	1. Three-dimensional Learning	**Yes**	The instructional materials are designed so that students can develop scientific skills by interacting with the three dimensions of the science standards. There is an integration of the three dimensions to support mastery of the performance expectations, and they are addressed within minimal isolation.
	2. Phenomenon-Based Instruction	**Yes**	Observing and explaining phenomena and designing solutions in these materials provide the purpose and opportunity for students to engage in learning. Each unit engages students through an anchor-based phenomenon that gives them a context for designing and testing solutions to help explain the world around them, along with a purpose and opportunity to build knowledge about the Disciplinary Core Ideas.
	3. Alignment & Accuracy	**Yes**	Minimal time is spent on content that is outside of this grade.
	4. Disciplinary Literacy	**Yes**	Students regularly engage in speaking and writing about scientific phenomena. Students also use evidence and authentic sources to support their ideas. There is variability throughout the lessons and in the tasks between each unit. Each lesson provides the introduction to, and use of, vocabulary words to build comprehension. The vocabulary is also used during writings and explanations within other activities throughout the unit.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
II: Additional Indicators of Quality	5. Learning Progressions	**Yes**	The lessons within each unit are organized to support learning through a natural progression. Students are exposed to various levels of rigor as lessons build upon one another in complexity. When applicable, students engage in mathematical thinking that is appropriate for their grade level.
	6. Scaffolding and Support	**Yes**	The support materials for teachers are comprehensive and robust with a variety of components for each lesson and unit. The "Teacher Tools" provides appropriate suggestions and materials for differentiated instruction.
	7. Usability	**Yes**	All materials are readily accessible. These materials include laboratory safety guidelines for procedures and for using the equipment. The amount of content for each standard addressed is viable for the school year.
	8. Assessment	**Yes**	Throughout each unit, students encounter multiple types of assessments, both formative and summative. Lessons require students to write, investigate, create models, draw, and express arguments. Assessment items and tasks are structured on the integration of the three-dimensions of the science standards. The scoring guidelines support the teachers' objective assessment of students and incorporate criteria that are specific, observable, and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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: **IQWST™**

Grade/Course: **7**

Publisher: **Activate Learning, LLC**

Copyright: **2018**

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

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

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

To evaluate each set of submitted materials for alignment with the standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicator in Column 2, then the materials receive a "No" in Column 1. Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria in order for the review to continue to Section II.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria 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, crosscutting concepts and disciplinary core ideas separately when necessary but they are most often integrated to support deeper learning.	**Yes**	The instructional materials are designed so that students can develop scientific knowledge and skills by interacting with the three dimensions of the science standards. The three dimensions are integrated in the majority of lessons and students have multiple opportunities to practice and apply their understanding of the three dimensions for deeper learning. In the unit, "What Is Going On Inside Me?", Lesson 3, students dissect a pen to determine its many structures and functions, which represents a Crosscutting Concept (CCC) and Disciplinary Core Idea (DCI) addressing LS1A.c. Students use this activity, along with a reading, to develop a working definition for a system (CCC). Students then apply this knowledge to their understanding of the human body by developing a written argument, a Science and Engineering Practice (SEP), to explain whether the human body is an example of a system. Three-dimensional teaching and learning is consistent across the majority of the materials through embedded investigations and other activities. In the Physical Science unit, "How Can I Smell Things from a Distance?", students are instructed to develop a model that describes how we smell and how molecules move. In Lesson 4, students investigate how air is added to an object by creating a visual representation in which they must use the properties of Matter and Patterns (CCC) from the given examples. Informational texts are used to make connections with the concept of properties of matter (DCI PS1A.b). Using these texts, students modify their initial models (SEP Developing and Using Models). At the end of the unit, students build a consensus model of matter and summarize their findings from previous lessons.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Non-Negotiable **2. PHENOMENON-BASED INSTRUCTION:** Explaining phenomenon and designing solutions drive student learning. ☒ Yes ☐ No	**REQUIRED** **2a)** Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time.	**Yes**	Observing and explaining phenomena and designing solutions in these materials provides the purpose and opportunity for students to engage in learning. Each major unit includes an anchor phenomenon in the form of a question. Each lesson includes an investigative phenomenon that ties back to the larger anchor phenomenon. For example, in the Intro to Chemistry unit, "How Does Food Provide My Body with Energy?," the anchor phenomenon is introduced in Activity 1.1 where students exercise and record data using pedometers and probes to measure change, and in Activity 1.2 observe a burning tortilla chip. Both activities provide engaging experiences that spark curiosity for the macroscopic phenomena that occur in our bodies, evoke questions that set the stage for lessons that follow and drive the purpose for learning. By Lesson 8, students articulate how burning food is similar to the chemical reactions that provide the body with energy. In the Intro to Chemistry unit, "How Can I Smell Things from a Distance?" the anchor phenomenon in Lesson 1 has the teacher open a jar with a strong odor. The experience for students provides them the context for learning throughout this unit. Students gain knowledge and understanding of matter and they develop a consensus model that illustrates the movement of the odor. By Lesson 16, students apply their experiences and consensus model to a real-world scenario. In the Life Science unit, "What Is Going On Inside Me?", students are hooked by the unit question. They explore an engaging question and observe their own cheek cells. This activity invites predictions and questions as students observe and compare different cells from their own bodies using a microscope. The activity also provides the purpose and opportunity for students to engage in SEP to build understanding and answer the questions posed, including the focus question, "What is going on inside me?", through the lessons that follow. Lessons build on each other to address the unit question and use different cell types for interpreting the purpose

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			and function of the human system. This experience guides the learning as students explore how the body is made of cells and are part of a larger system. By the end of the unit, students articulate how different kinds of cells work together to make the human body system function.
Non-Negotiable (only reviewed if criteria 1 and 2 are met) **3. ALIGNMENT & ACCURACY:** Materials adequately address the Louisiana Student Standards for Science. ☒ Yes ☐ No	**REQUIRED** **3a)** The majority of the Louisiana Student Standards for Science are incorporated, to the full **depth of the standards**.	**Yes**	Within the curricular units IC1: How Can I Smell Things from a Distance?, ES2: What Makes the Weather Change?, LS2: What is Going on Inside Me?, and IC3: How Does Food Provide My Body With Energy?, the majority of the seventh grade Louisiana Student Standards for Science are incorporated to the full depth of the standard. The standards, 7-MS-LS4-4, 7-MS-LS4-5, and 7-LS3-2 are partially addressed (primarily in the SEP and CCC dimensions) by these units and are more fully addressed in the eighth grade curricular unit LS3: Why Do Organisms Look the Way They Do? The standard 7-MS-LS2-5 is partially addressed in Unit ES2: What Makes the Weather Change? It is also covered in sixth grade Unit LS1: Where Have All the Creatures Gone?
	REQUIRED **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	The science content in this grade is accurate and reflects the current and widely accepted explanations. There is no evidence of inaccurate content.
	3c) In any one grade or course, instructional materials spend minimal time on content outside of the course, grade, or grade-band.	**Yes**	Minimal time is spent on content that is outside of this grade. Lessons found within units are organized to build knowledge and maximize the building of foundation for the Science and Engineering Practices required for each standard. Overall, there is minimal evidence of time spent outside of the course, grade or grade-band.
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	**REQUIRED *Indicator for grades 4-12 only** **4a)** Students regularly engage with **authentic sources** that represent the language and style that is used and produced by scientists; e.g., journal excerpts, authentic data, photographs, sections of lab reports, and media releases of current science research. Frequency of engagement with authentic sources should increase in higher grade levels and courses.	**Yes**	Students regularly engage with authentic sources that represent the language and style that is used and produced by scientists. For example, in the unit, “What Makes the Weather Change?”, students are exposed to authentic weather reports from April 2017, in Atlanta, Singapore, Oslo, and several other major cities around the world. In Lesson 5, students are exposed to authentic satellite and radar images that are used to forecast

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
literacy. ☒ Yes ☐ No			the weather in the language and style of meteorologists. In the unit, "How Can I Smell Things From A Distance?", students explore the Emissions Spectra Simulation. This simulation incorporates authentic data related to spectra of gas discharges recorded in the Atomic Spectra Database by the National Institute of Standards and Technology (NIST). The data and language that students encounter is authentic and true to scientific style. Additionally, authentic historic sources are provided to support student understanding of how scientists arrive at conclusions. In Lesson 1 of the unit, "What Is Going On Inside Me?", students view a real image of honeycomb taken through a microscope and the original sketches that Aton van Leeuwenhoek drew of microorganisms in his notebook. This supports the understanding of the behaviors and tools of true scientists.
	REQUIRED **4b)** Students regularly engage in **speaking and writing** about scientific phenomena and engineering solutions using authentic science sources; e.g., authentic data, models, lab investigations, or journal excerpts. Materials address the necessity of using **scientific evidence** to support scientific ideas.	**Yes**	Students regularly engage in speaking and writing about scientific phenomena. All lessons provide opportunity for students to write before and/ or after exploration. Extension activities create space for students to discuss findings in order to enhance their ability to communicate activity outcomes and data. Students must provide evidence within their writing as well as reasoning to justify their responses. Writings in Lesson 4, Activity 4.3, "Is a Storm Cloud Different from Other Clouds?", ask students to compare storm clouds and regular clouds then revise a previously created model. Students are required to use observable evidence within their answer, which impacts their disciplinary literacy. There is also a focus on using evidence and authentic sources to support ideas. For example, in Lesson 9 of the unit, "How Does Food Provide My Body with Energy?", students first engage in a class discussion where they review evidence they have collected about chemical reactions occurring in the body. Students then analyze authentic data tables which show oxygen and carbon dioxide levels in blood going into and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			out of the lungs. This writing activity allows students to revise previous explanations. Lesson 11 of the unit, "What Is Going On Inside Me?", culminates with a writing and discussion task. Students refer back to an original Driving Question Board, then work in teams to create an explanation to one of the questions where claims must be supported by evidence. There is an emphasis on 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.	**Yes**	There is variability throughout the lessons in each unit. In the unit, "How Can I Smell Things from a Distance?", the culminating task is to design a model that shows what makes an odor and use it to explain the phenomenon of odor traveling from place to place. Within the unit, there are numerous other types of tasks that add variability. In Lesson 11, students collect data to determine how molecules move at different temperatures. There are readings and questions throughout that require students to explain scientific phenomena. In the unit, "What Makes the Weather Change?" Lesson 4, Activity 4.1, students construct a barometer and in Lesson 5, Activity 5.1, students interpret a weather map and answer associated questions. In Lesson 7, Activity 7.5, students analyze data and establish a correlation between data and explanation. In the unit, "What Is Going On Inside Me?", Lesson 4 provides a lab activity on the physical breakdown of food. In the same lesson, Activity 4.4, students investigate the surface of the intestines using strips of paper, while in Lesson 9 they construct an explanation based on the information collected. Components in the unit are varied and require multiple learning modalities. The variation in tasks create connections among the three dimensions of the science standards and ensure content depth and mastery.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	4d) Materials provide a coherent sequence of authentic science sources that build scientific **vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	Each lesson provides the introduction to, and use of, vocabulary words to build comprehension. The readings, discussions, and investigations introduce new vocabulary terms and apply them within the context of learning. In the unit, "What Is Going On Inside Me?", student are introduced to vocabulary that is related to cells by exploring the findings of Robert Hooke and Anton van Leeuwenhoek. An authentic science experience sets them up to have a foundational understanding of this vocabulary. By the end of the unit, students know complex vocabulary and each of the structures and functions of organelles. In Lesson 3, "How Can I Smell Things from a Distance?", students learn the concepts of mass and volume. Through reading, they learn that anything that has mass and volume is known as matter. In the unit, "What Makes the Weather Change?", students learn vocabulary through words within a relatable context. For example, in Lesson 1, students observe temperature, humidity, and precipitation from weather forecasts. Then in subsequent readings, these words are experienced in a more dynamic way through different conditions that affect the weather. Vocabulary is not taught in isolation and is developed authentically to deepen understanding.
SECTION II: ADDITIONAL INDICATORS OF QUALITY			
Additional Criterion **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	**REQUIRED** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The lessons within each unit are organized to support learning through a natural progression. Students are exposed to various levels of rigor as lessons build upon one another in complexity. This allows the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts while also preventing misunderstanding. For example, in the "What Makes the Weather Change?" unit, an anchoring activity has students explore weather data from different cities around the world guiding them to conclude that weather conditions are present all around the world. The lessons introduce new concepts such as how unequal heating causes convection currents and

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Louisiana Student Standards for Math. ☒ Yes ☐ No			other factors that affect weather. In Lesson 8, students apply their understanding through the examination of data from two case studies. The activities equip them with the understanding needed to answer the complex Driving Question, "Why is weather different from place to place?" Within the unit, "How Can I Smell Things From A Distance?", Lessons 4 and 5 demonstrate organizational progression (e.g., 4.1 – How Can I Model the Things Gases Do?, Lesson 4 Reading One; 5.1 – What Else Can Gases Do? and Developing Models, Lesson 5 Reading One and How Can I Model the things Gases Do?; and 5.3 – Developing and Using a Consensus Model). Embedded readings between two concepts that are related, but differ in difficulty level, allow students to explore and gain understanding before moving to more progressive tasks. These tasks show direct support to the performance expectations and build toward the mastery of all required pieces. The "How Does Food Provide My Body with Energy?" unit begins with an anchoring activity using probes to collect data that shows body changes while exercising. The subsequent lessons increase in rigor while helping students develop understanding of chemical reactions within the body as well as energy conversion in living things. By the end of the unit, with this learning progression, students are able to explain complex concepts like energy and matter flow within an ecosystem. These logical progressions of complexity support the rigor of the performance expectations.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's expectations in the Louisiana Student Standards for Mathematics. Preferably, **math connections** are made explicit through clear references to the math standards, specifically in teacher materials.	**Yes**	When applicable, students engage in mathematical thinking that is appropriate for their grade level. For example, in Lesson 2 of the "How Can I Smell Things from a Distance?" unit, students practice two simple methods to calculate volume. They use multiplication to calculate the volume of regular objects and simple subtraction for irregular objects using the water displacement method. If students have not had experience calculating volume,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			teachers are expected to teach this process as directed in the "Teacher Tools." In Activity 3.3 of the "How Does Food Provide My Body with Energy?" unit, students use their individual data to calculate their rate of calorie use per minute. The Teacher Edition suggests making connections to other rates, such as miles per hour, before explicitly providing students with the operation for this calculation. In the "What Makes The Weather Change?" unit, Lesson 3, Activity 3.2, students explore measurements of temperatures and weights associated with changes that must be related to changes in air. Lessons also require plotting of data, collecting data, and using data to create models. These activities must be reviewed by the teacher in order to provide students with the correct materials to complete investigations that incorporate mathematics. Math connections are not made explicitly through references to the standards, but there are authentic opportunities for students to apply mathematical thinking in the context of the units.
Additional Criterion **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 (i.e. conversation guides, sample scripts, rubrics, exemplar student responses).	**Yes**	The support materials for teachers are comprehensive and robust with a variety of components for each lesson and unit. All lessons provide support to teachers through the "Teacher Tools" and the IQWST overview books. Lesson preparation materials include lesson setup, safety address them, guidance targeting speaking and writing in the science classroom (i.e., conversation guides, sample scripts, rubrics, exemplar student responses). guidelines, suggestions for differentiation, and materials needed to teach each lesson. Also included are documents showing which standards are addressed and guidance for teaching each lesson. The IQWST overview books provide guidance on strategies for supporting reading and writing in science and ways to build coherence, as well as ways to support three-dimensional learning. The "Teacher Tools" offer support that promote effective teaching for each lesson and equips teachers with the depth of

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			understanding required for them to implement the curriculum as intended.
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. "Teacher Tools" provide appropriate suggestions and materials for differentiated instruction. Each unit provides differentiation strategies which can be found in the "Lesson Preparation" section of the "Teacher Tools." In this section, there are suggestions for how to differentiate various components of the lesson. For example, the "Differentiation" tab for Activity 7.1 in the "How Can I Smell Things from a Distance?" unit, provides a strategy for supporting students who may benefit from additional visual representation. For example, as students complete a chart related to the emissions spectra it is suggested that they use crayons or markers to make their recordings. This provides students with a more precise and visual representation of data. In Activity 5.1 of the "What Makes the Weather Change?" unit, students examine and interpret various weather maps and weather map symbols. The teacher materials provide suggestions for students who need additional practice and suggests the use of local maps, maps from cities students have visited, or maps from cities where they have relatives. This provides additional support and makes the content more relatable. The curriculum also provides differentiation strategies within the supplemental IQWST Overview document where general suggestions for differentiating activities are provided to engage more students and support both struggling and advanced learners along with writing- and math-focused strategies to consider. Differentiation is also evident in the setup of each lesson. Teachers can adjust activities to address various learning levels and also use audio readings

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			for each lesson.
Additional Criterion **7. USABILITY:** Materials are easily accessible, promote safety in the science classroom, and are viable for implementation given the length of a school year. ☒ Yes ☐ No	**REQUIRED** **7a)** Text sets (when applicable), laboratory, and other scientific materials are **readily accessible** through vendor packaging.	**Yes**	All materials are readily accessible. The digital platform provides all texts, labs, assessments, and other student academic materials. All of these digital materials are located in one centralized location and are user-friendly.
	7b) Materials help students build an understanding of standard operating procedures in a science laboratory and include **safety** guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the curriculum.	**Yes**	These materials include laboratory safety guidelines for procedures and for using the equipment. The materials in each unit help students build an understanding of standard operating procedures in a science laboratory. Within the "Lesson Preparation" section of the "Teacher Tools" there is a tab for "Safety Guidelines." Activities that require investigations include step-by-step outlines. General laboratory safety information can also be found in the "IQWST Overview."
	7c) The total amount of content is **viable** for a school year.	**Yes**	The amount of content for each standard addressed is viable for the school year. The unit calendar, referenced in "Teacher Tools," provides the specific number of class periods needed to complete the unit. There are also opportunities for extension activities to help deepen student understanding of the content for those teachers who have longer class periods or need additional material.
Additional Criterion **8. ASSESSMENT:** Materials offer assessment opportunities that genuinely measure progress and elicit direct, observable evidence of the degree to which students can independently demonstrate the assessed standards. ☒ Yes ☐ No	**REQUIRED** **8a) Multiple types** of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Throughout each unit, students encounter multiple types of assessments, both formative and summative. Lessons require students to write, investigate, create models, draw, and express arguments. In Lesson 16 of the "How Can I Smell Things from a Distance?" unit, students construct a model to demonstrate the movement of molecules which can be used as a summative assessment of student ability to explain this phenomenon. In the "What Is Going On Inside Me?" unit, readings and homework can also be used as formative assessments. For example, the written explanation in Activity 9.1 can be used as a summative assessment on the student's ability to explain how food is used by the body and how exercise increases heat production. In Lesson 3 of the

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			"What Makes the Weather Change?" unit, the "Making Sense" question can be used to formatively assess the student's understanding of convection. Additionally, there is a test bank of multiple-choice and constructed response items that teachers can use for formative or summative assessment. These assessments measure student progress towards, and mastery of, the learning targets.
	REQUIRED **8b)** Assessment items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on integration of the three-dimensions. For example, in Activity 6.3, "How Can I Smell Things from a Distance?" unit, students are asked to explain where Oxygen goes when you breathe. This assignment incorporates the DCI related to the structure and function, as well energy flow, in organisms, the CCC of Energy and Matter, and the SEP of analyzing and interpreting data. In the "What Makes the Weather Change?" unit, Lesson 8 provides multiple tasks that can be used as assessments and integrate the three-dimensions of science. For example, the table from Activity 8.3 supports the DCIs to incorporate the universe and stars and the earth and solar system, integrate the SEP for engaging in argument from evidence, and the CCCs of cause and effect. Questions such as, "Use what you know about heat to explain what happens" and "Draw a model that shows the Earth's orbit around the sun" integrate the three-dimensions."
	8c) Scoring guidelines and rubrics **align** to performance expectations, and incorporate criteria that are specific, observable, and measurable.	**Yes**	The scoring guidelines support the teachers' objective assessment of students and incorporate criteria that are specific, observable, and measurable. The scoring guidelines and rubrics align with performance expectations. Each lesson provides guidance for activities such as rubrics, visual examples of setup, as well as exemplars. In the "What is Going On Inside Me?" unit, evaluation criteria for scientific explanations can be found in the "Unit Resources" file. The guidance document provides support for teachers who must determine whether students are appropriately interpreting

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			evidence to support a claim. In the "How Can I Smell Things from a Distance?" unit, there is evaluation criteria for models in the "Unit Resources" file to support teachers with their observation and evaluation of student models created in the lessons. The guidance document provides support for teachers who must determine whether students are appropriately interpreting evidence to support a claim. Assignments can be digitally scored under the "Student Work" section in "Grade Activity by Student/Question." Scientific principles are available for each unit, as well as images that can be projected for clarity of content.

FINAL EVALUATION
Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 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-Negotiables	1. Three-dimensional Learning	**Yes**	The instructional materials are designed so that students can develop scientific skills by interacting with the three dimensions of the science standards. There is an integration of the three dimensions to support mastery of the performance expectations, and they are addressed within minimal isolation.
	2. Phenomenon-Based Instruction	**Yes**	Observing and explaining phenomena and designing solutions in these materials provide the purpose and opportunity for students to engage in learning. Each unit engages students through an anchor-based phenomenon that gives them a context for designing and testing solutions to help explain the world around them, along with a purpose and opportunity to build knowledge about the Disciplinary Core Ideas.
	3. Alignment & Accuracy	**Yes**	Minimal time is spent on content that is outside of this grade.
	4. Disciplinary Literacy	**Yes**	Students regularly engage in speaking and writing about scientific phenomena. Students also use evidence and authentic sources to support their

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			ideas. There is variability throughout the lessons and in the tasks between each unit. Each lesson provides the introduction to, and use of, vocabulary words to build comprehension. The vocabulary is also used during writings and explanations within other activities throughout the unit.
II: Additional Indicators of Quality	5. Learning Progressions	**Yes**	The lessons within each unit are organized to support learning through a natural progression. Students are exposed to various levels of rigor as lessons build upon one another in complexity. When applicable, students engage in mathematical thinking that is appropriate for their grade level
	6. Scaffolding and Support	**Yes**	The support materials for teachers are comprehensive and robust with a variety of components for each lesson and unit. The "Teacher Tools" provides appropriate suggestions and materials for differentiated instruction.
	7. Usability	**Yes**	All materials are readily accessible. These materials include laboratory safety guidelines for procedures and for using the equipment. The amount of content for each standard addressed is viable for the school year.
	8. Assessment	**Yes**	Throughout each unit, students encounter multiple types of assessments, both formative and summative. Lessons require students to write, investigate, create models, draw, and express arguments. Assessment items and tasks are structured on the integration of the three-dimensions of the science standards. The scoring guidelines support the teachers' objective assessment of students and incorporate criteria that are specific, observable, and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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: **IQWST™**

Grade/Course: **8**

Publisher: **Activate Learning, LLC**

Copyright: **2018**

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

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

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

To evaluate each set of submitted materials for alignment with the standards, begin by reviewing the indicators listed in Column 2 for the non-negotiable criteria. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicator in Column 2, then the materials receive a "No" in Column 1. Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria in order for the review to continue to Section II.

For Section II, begin by reviewing the required indicators in Column 2 for each criterion. If there is a "Yes" for all required indicators in Column 2, then the materials receive a "Yes" in Column 1. If there is a "No" for any required indicators in Column 2, then the materials receive a "No" in Column 1.

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.
Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.
Tier 3 ratings receive a "No" in Column 1 for at least one of the non-negotiable criteria.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
SECTION I: NON-NEGOTIABLE CRITERIA: Submissions must meet Criteria 1 and 2 for the review to continue to Criteria 3 and 4. Submissions must meet all of the non-negotiable criteria 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, crosscutting concepts and disciplinary core ideas separately when necessary but they are most often integrated to support deeper learning.	**Yes**	The instructional materials are designed so that students can develop scientific knowledge and skills by interacting with the three dimensions of the science standards. The three dimensions are integrated in the majority of lessons and students have multiple opportunities to practice and apply their understanding of the three dimensions for deeper learning. In the Earth Science unit, "How Does Water Shape Our World?", the instructional materials are designed so that students can develop scientific skills by interacting with the three dimensions. Students have multiple opportunities to engage in Science and Engineering Practices (SEP) and apply their and build their understanding of Disciplinary Core Ideas (DCI) through Crosscutting Concepts (CCC). For example, in Lesson 2 students are provided with two case studies of national parks. Students will Analyze and Interpret Data (SEP) and demonstrate the role that water played in creating the major landforms of the national park. This requires them to engage in SEP and build understanding of the DCI in Earth's Materials and Systems (ESS2.A) and in The Roles of Water in Earth's Surface Processes (ESS2.C) through the lens of patterns (CCC). Three-dimensional teaching and learning is consistent across the majority of the materials through embedded investigations and other activities. In the unit, "How Can I Make New Stuff From Old Stuff?", students are not only introduced to information through text, such as "What Other Properties Can Distinguish Soap from Fat?" in Lesson 4 Reading One, but also through hands-on activities as seen throughout most lessons in which students are engaged in Planning and Carrying Out Investigations (SEP) to build understanding of core ideas. There is evidence of multiple Crosscutting

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Concepts in lessons associated with Cause and Effect and Stability and Change, such as in Lesson 2 and Lesson 7.
Non-Negotiable **2. PHENOMENON-BASED INSTRUCTION:** Explaining phenomenon and designing solutions drive student learning. ☒ Yes ☐ No	**REQUIRED** **2a)** Observing and explaining phenomena and designing solutions provide the purpose and opportunity for students to engage in learning a majority of the time.	**Yes**	Observing and explaining phenomena and designing solutions in these materials provides the purpose and opportunity for students to engage in learning. Each major unit includes an anchor phenomenon in the form of a question. Each lesson includes an investigative phenomenon that ties back to the larger anchor phenomenon. Throughout each unit, students stop at key checkpoints and refer back to the driving question to consider how their ideas about the phenomena have grown and changed as a result of their investigation. For example, in the Intro to Chemistry unit, "How Can I Make New Stuff From Old Stuff?," the anchor phenomenon is introduced in Activity 1.1 where students combine copper chloride solution with aluminum foil and witness a chemical reaction firsthand. The experience and questions drive the purpose for learning as students explore physical and chemical properties of matter as well as physical and chemical changes. In the Life Science unit, "Why Do Organisms Look The Way They Do?," the anchor phenomenon introduced in Lesson 1 has students observe traits that make them unique and trait variations within their peer groups. Students then investigate traits and reasons for variations which drives the purpose for the unit and helps them explore the driving question, "Why Do Organisms Look The Way They Do?" In the Earth Science unit, "How Is The Earth Changing?," the anchor phenomenon in Activity 1.1 and Activity 1.2 has students use world maps and data to form observations and initial thoughts about where volcanoes are earthquakes are likely to occur on earth. This experience drives the purpose for learning as students investigate and answer their questions while engaging in the Science and Engineering Practices to explore concepts related to plate tectonics and eventually build a robust understanding of the Disciplinary

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			Core Ideas of the unit and answer the Driving Question, "How Is The Earth Changing?"
Non-Negotiable (only reviewed if criteria 1 and 2 are met) **3. ALIGNMENT & ACCURACY:** Materials adequately address the Louisiana Student Standards for Science. ☒ Yes ☐ No	**REQUIRED** **3a)** The majority of the Louisiana Student Standards for Science are incorporated, to the full **depth of the standards**.	**Yes**	Within the curricular units IC2: How Can I Make New Stuff From Old Stuff?, PS2: Why Do Some Things Stop While Others Keep Going?, ES3: How is the Earth Changing?, ES1: How Does Water Shape Our World? and LS3: Why do Organisms Look the Way They Do?, the majority of the eighth grade Louisiana Student Standards for Science are incorporated to the full depth of the standard. The standards, 8-MS-LS1-4 and 8-MS-LS4-1 are partially addressed by these units and are both more fully addressed in other units.
	REQUIRED **3b)** Science content is **accurate**, reflecting the most current and widely accepted explanations.	**Yes**	The science content in this grade is accurate and reflects the current and widely accepted explanations. There is no evidence of inaccurate content.
	3c) In any one grade or course, instructional materials spend minimal time on content outside of the course, grade, or grade-band.	**Yes**	Minimal time is spent on content that is outside of this grade. Lessons found within units are organized to build knowledge and maximize the building of foundation for the Science and Engineering Practices required for each standard. Overall, there is minimal evidence of time spent outside of the course, grade or grade-band.
Non-Negotiable (only reviewed if criteria 1 and 2 are met) **4. DISCIPLINARY LITERACY:** Materials have students engage with authentic sources and incorporate speaking, reading, and writing to develop scientific literacy. ☒ Yes ☐ No	**REQUIRED *Indicator for grades 4-12 only** **4a)** Students regularly engage with **authentic sources** that represent the language and style that is used and produced by scientists; e.g., journal excerpts, authentic data, photographs, sections of lab reports, and media releases of current science research. Frequency of engagement with authentic sources should increase in higher grade levels and courses.	**Yes**	Students regularly engage with authentic sources that represent the language and style that is used and produced by scientists. For example, in the Earth Science unit, "How Does Water Shape Our World?" Lesson 1, students are exposed to images of rocks in Volcanoes National Park and Grand Canyon National Park. In Lesson 3, students then explore maps of these locations to determine where water can be found. Students are also exposed to authentic visual representations of how scientists engage in their work. For example, in Lesson 7, students are introduced to the concept of a stream table and the ways in which it can be used to study rivers. Students view an actual stream table used at Arizona State University. In the Intro to Chemistry unit, "How Can I Make New Stuff From Old Stuff?," students interact with data

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			tables, recording their observations before and after a chemical reaction. In Lesson 12, students are exposed to chemical formulas and models of different reactions in order to observe how atoms are rearranged. This activity demonstrates authentic examples of how scientists communicate in their discipline. Students are also exposed to the authentic experiences of real scientists. For example, in the unit, "Why Do Organisms Look The Way They Do?", Lesson 10 requires that students read about a real team of biologists who study finches on the island of Daphne Major in the Galapagos. Students learn how the team works in a natural laboratory and how their data collection process differs from that of a more traditional laboratory. Students observe authentic photographs that help them visualize the procedures used by the scientists.
	REQUIRED **4b)** Students regularly engage in **speaking and writing** about scientific phenomena and engineering solutions using authentic science sources; e.g., authentic data, models, lab investigations, or journal excerpts. Materials address the necessity of using **scientific evidence** to support scientific ideas.	**Yes**	Students regularly engage in speaking and writing about scientific phenomena. All lessons provide opportunity for students to write before and/ or after exploration. Extension activities create space for students to discuss findings in order to enhance their ability to communicate activity outcomes and data. Students must provide evidence within their writing as well as reasoning to justify their responses. Writings in the Lesson 11 unit, "How Else Can You Make Rock?" asks students, "Is the rock from Hawaii Volcano Park igneous or sedimentary?" and "How do you know?" which requires the use of simple model evidence within their answer and impacts their disciplinary literacy. There is also a focus on using evidence and authentic sources to support ideas. For example, in the Intro to Chemistry unit, How Can I Make New Stuff From Old Stuff?", students regularly engage in speaking and writing about scientific phenomena as seen in Lesson 5 where the first learning set concludes. Since students have a better understanding of concepts related to matter, they are able to speak and write about their understanding. Students construct an evidenced-

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			based explanation for why soap and fat are two different substances. Prior to their writing, students participate in class discussions where they analyze data and determine whether there is enough adequately support a claim. The emphasis is on scientific evidence to support ideas. The curriculum also integrates speaking and writing. For example, in the Life Science unit, "Why Do Organisms Work The Way They Do?," Activity 10.4 functions as a two-day lesson where students share their progress toward the culminating task with one another as a midpoint check. In Part 1, pairs synthesize their data and construct an evidence-based explanation. In Part 2, students read their explanations to each other and get feedback. There is an emphasis on 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.	**Yes**	There is variability throughout the lessons in each unit. In the Earth Science unit, "How Does Water Shape Our World?", the culminating task is to develop and participate in an oral group presentation in which students present their national park and make claims about how the landforms were shaped. Within the unit, there are numerous other types of tasks that add variability. In Lesson 4, students construct physical models of landforms and make predictions about how water will flow over these landforms. In Lesson 8, students complete a hands-on activity where they shake rocks back and forth in a tube to experience the effect of weathering and erosion. In Lesson 1 of the unit, "How Can I Make New Stuff From Old Stuff?", students explore the differences and relationships among a substance, mixture, and property. In Lesson 3, students investigate melting points and establish an understanding of factors that affect property. By Lesson 8, students make connections between words and symbols in chemical reactions. There are readings and questions throughout each unit that require students to explain scientific phenomena. Components in the unit are varied and require

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			multiple learning modalities. The variation in tasks create connections among the three dimensions of the science standards and ensure content depth and mastery.
	4d) Materials provide a coherent sequence of authentic science sources that build scientific **vocabulary** and knowledge over the course of study. Vocabulary is addressed as needed in the materials but not taught in isolation of deeper scientific learning.	**Yes**	Each lesson provides the introduction to, and use of, vocabulary words to build comprehension. The readings, discussions, and investigations introduce new vocabulary terms and apply them within the context of learning. In the unit, "Why Do Some Things Stop While the Others Keep Going?" Lesson 1, the discussion of what energy is creates a foundation for Lesson 11 in terms of what energy can be used for and how it impacts objects. The vocabulary is also utilized during writings and explanations within other activities. In the Life Science unit, "Why Do Organisms Work The Way They Do?," the lessons and materials build scientific vocabulary through knowledge of scientific principles. For example, in the Teacher Background section of Lesson 6, a specific vocabulary strategy is suggested. The distinction between the words genotype and phenotype is pointed out to teachers as most challenging for students and offers the suggestion to scaffold understanding by repeating the descriptors when the words are used, until they are able to eliminate that support and for them to provide examples of the distinctions to support students learning this vocabulary. In the Earth Science unit, "How Is The Earth Changing?," the lessons and materials build scientific vocabulary through knowledge of scientific principles. The Teacher Edition suggests making connections between other scientific concepts to build meanings of vocabulary. For example, in Lesson 5 it is suggested that student understanding of energy transformations be used to introduce "transform boundaries." Vocabulary is not taught in isolation through the units but it is developed authentically to deepen understanding.
SECTION II: ADDITIONAL INDICATORS OF QUALITY			

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Additional Criterion **5. LEARNING PROGRESSIONS:** The materials adequately address Appendix A: Learning Progressions. They are coherent and provide natural connections to other performance expectations including science and engineering practices, crosscutting concepts, and disciplinary core ideas; the content complements the the Louisiana Student Standards for Math. ☒ Yes ☐ No	**REQUIRED** **5a)** The overall organization of the materials and the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts are coherent within and across units. The **progression of learning** is coordinated over time, clear and organized to prevent student misunderstanding and supports student mastery of the performance expectations.	**Yes**	The lessons within each unit are organized to support learning through a natural progression. Students are exposed to various levels of rigor as lessons build upon one another in complexity. This allows the development of disciplinary core ideas, science and engineering practices, and crosscutting concepts while also preventing misunderstanding. For example, in the Life Science unit, "Why Do Organisms Work The Way They Do?," there are different learning sets that coordinate and support the progression of learning. In Lessons 1-4 focus is on patterns of inherited traits. In the second learning set, Lessons 5-7 focus is on DNA as the mechanism for inheritance. In the third learning set, Lessons 8-11 focus is on building prior knowledge by adding a layer of complexity through the introduction of variation and benefits of populations with variations. Within the "How Can I Make New Stuff From Old Stuff?" unit, the lessons are organized to provide learning at a progressive pace. Students are exposed to various levels of rigor as lessons build upon one another. For example, see Lesson 1 which shows the organizational progression as follows: 1.1 – Can I Make New Stuff from Old Stuff, 1 Reading – What is Important about the Stuff I Use, 1.2 – How is This Stuff the Same and Different, 2 Reading – What Makes a Substance a Special Kind of Stuff, and 1.3 – Demonstration and Review of content. Embedded readings between two concepts that are related, but differ in difficulty level, allow students to explore and gain understanding before moving to more progressive tasks. These tasks show direct support to the performance expectations and build toward the mastery of all required pieces. The Earth Science unit, "How Does Water Shape Our World?," is organized to build complexity. For example, the unit begins with a simple exploration of different national parks and the rocks found at each. Subsequent lessons introduce new concepts that spark curiosity, such as where water is located at each park and how water can affect rocks. By Lesson 13, students

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			apply their understanding to a new national park and explain why it has the landforms it does. By the end of the unit, students have deeper understanding to answer the Driving Question, "How Does Water Shape Our Land?" These logical progressions of complexity support the rigor of the performance expectations.
	5b) Students apply mathematical thinking when applicable. They are not introduced to math skills that are beyond the applicable grade's expectations in the Louisiana Student Standards for Mathematics. Preferably, **math connections** are made explicit through clear references to the math standards, specifically in teacher materials.	**Yes**	When applicable, students engage in mathematical thinking that is appropriate for their grade level. For example, in the Earth Science unit, "How Does Water Shape Our World?," Activity 3.2 students work in groups using a Pasco Humidity Sensor to measure the amount of water vapor in different areas of the school. Students record these measurements in a data table and calculate the averages. If students have not had experience calculating the average of a data set, teachers are expected to teach this process, as directed in the "Teacher Tools." In Activity 3.1 of the Physical Science unit, "Why Do Some Things Stop While Others Keep Going?," students examine the relationship between elevation and gravity. Students drop cans from different heights and record the impact of height on a clay ball then complete simple calculations. A skewer is used to measure the clay's thickness, subtraction to determine changes, and with teacher support, then calculate the average change in thickness from each height. In the Earth Science unit, "How Is The Earth Changing?," Appendix 2, Lesson 2.2, students engage with number lines. Students create a timeline relative to their life, and analyze geologic timelines to support number sense with very large numbers. Math connections are not made explicitly through references to the standards, but there are authentic opportunities for students to apply mathematical thinking in the context of the units.
Additional Criterion **6. SCAFFOLDING AND SUPPORT:** Materials provide teachers with guidance to build their own	**REQUIRED** **6a)** There are separate **teacher support** materials including: scientific background knowledge, support in three-dimensional learning, learning progressions,	**Yes**	The support materials for teachers are comprehensive and robust with a variety of components for each lesson and unit. All lessons provide support to teachers through the "Teacher Tools" and the IQWST overview books. Lesson

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
knowledge and to give all students extensive opportunities and support to explore key concepts using multiple, varied experiences to build scientific thinking. ☒ Yes ☐ No	common student misconceptions and suggestions to address them, guidance targeting speaking and writing in the science classroom (i.e. conversation guides, sample scripts, rubrics, exemplar student responses).		preparation materials include lesson setup, safety address them, guidance targeting speaking and writing in the science classroom (i.e., conversation guides, sample scripts, rubrics, exemplar student responses). guidelines, suggestions for differentiation, and materials needed to teach each lesson. Also included are documents showing which standards are addressed and guidance for teaching each lesson. The IQWST overview books provide guidance on strategies for supporting reading and writing in science and ways to build coherence, as well as ways to support three-dimensional learning. The "Teacher Tools" offer support that promote effective teaching for each lesson and equips teachers with the depth of understanding required for them to implement the curriculum as intended.
	6b) Appropriate suggestions and materials are provided for **differentiated instruction** supporting varying student needs at the unit and lesson level (e.g., alternative teaching approaches, pacing, instructional delivery options, suggestions for addressing common student difficulties to meet standards, etc.).	**Yes**	Appropriate suggestions and materials are provided for differentiated instruction supporting varying student needs at the unit and lesson level. "Teacher Tools" provide appropriate suggestions and materials for differentiated instruction. Each unit provides differentiation strategies which can be found in the "Lesson Preparation" section of the "Teacher Tools." In this section, there are suggestions for how to differentiate various components of the lesson. For example, in the Earth Science unit, "How Does Water Shape Our World?", for Lesson 8 the "Differentiation" tab indicates that some students may require extended time and suggests using the IQWST Portal to view images for a longer time and with closer examination. In Lesson 13, the use of a supplemental recording sheet for students to complete during the group presentations is suggested. The recording sheet is a graphic way for students to record information about each park. In the Physical Science unit, "Why Do Some Things Stop While Others Keep Going?", Lesson 1 suggests teachers create a "display and pronounce" section on their whiteboard. This section should include very few words, but that are challenging such as,

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			"pendulum." It encourages the teacher to not explicitly teach the word, and instead peak student curiosity about the word and support them with pronunciation. In the Life Science unit, "Why Do Organisms Work The Way They Do?", the "Differentiation" tab in Lesson 10 suggests extension activities for students who excel with computers and technology. The curriculum also provides differentiation strategies within the supplemental IQWST Overview document where general suggestions for differentiating activities are provided to engage more students and support both struggling and advanced learners along with writing- and math-focused strategies to consider. Differentiation is also evident in the setup of each lesson. Teachers can adjust activities to address various learning levels and also use audio readings for each lesson.
Additional Criterion **7. USABILITY:** Materials are easily accessible, promote safety in the science classroom, and are viable for implementation given the length of a school year. ☒ Yes ☐ No	**REQUIRED** **7a)** Text sets (when applicable), laboratory, and other scientific materials are **readily accessible** through vendor packaging.	**Yes**	All materials are readily accessible. The digital platform provides all texts, labs, assessments, and other student academic materials. All of these digital materials are located in one centralized location and are user-friendly.
	7b) Materials help students build an understanding of standard operating procedures in a science laboratory and include **safety** guidelines, procedures, and equipment. Science classroom and laboratory safety guidelines are embedded in the curriculum.	**Yes**	These materials include laboratory safety guidelines for procedures and for using the equipment. The materials in each unit help students build an understanding of standard operating procedures in a science laboratory. Within the "Lesson Preparation" section of the "Teacher Tools" there is a tab for "Safety Guidelines." Activities that require investigations include step-by-step outlines. General laboratory safety information can also be found in the "IQWST Overview."
	7c) The total amount of content is **viable** for a school year.	**Yes**	The amount of content for each standard addressed is viable for the school year. The unit calendar, referenced in "Teacher Tools," provides the specific number of class periods needed to complete the unit. There are also opportunities for extension activities to help deepen student understanding of the content for those teachers who have longer class periods or need additional

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			material.
Additional Criterion **8. ASSESSMENT:** Materials offer assessment opportunities that genuinely measure progress and elicit direct, observable evidence of the degree to which students can independently demonstrate the assessed standards. ☒ Yes ☐ No	**REQUIRED** **8a) Multiple types** of formative and summative assessments (performance-based tasks, questions, research, investigations, and projects) are embedded into content materials and assess the learning targets.	**Yes**	Throughout each unit, students encounter multiple types of assessments, both formative and summative. Lessons require students to write, investigate, create models, draw, and express arguments. In the Physical Science unit, "Why Do Some Things Stop While Others Keep Going?", in video 5.2 a billiard ball strikes a stationary ball. Students are then asked to explain how and why energy was transferred between the balls which serves as a formative assessment of student's ability to explain the phenomenon. In the Earth Science unit, "How Is The Earth Changing?," in Lesson 10.3, there are two "Making Sense" questions that can be used for assessment. One question assesses the student's ability to support an explanation to the "Driving Question" using evidence, while the other question assesses the student's ability to apply their understanding of the theory of plate tectonics to a new or unfamiliar scenario. In Lesson 3 of the Life Science unit, "Why Do Organisms Work The Way They Do?", students read and analyze a scenario about a sick boy. They learn about sickle cell anemia, genetic counseling, analyze a pedigree, then answer a question that can be used to formatively assess the student's ability to explain patterns they find in data related to inherited traits. Additionally, there is a question bank provided under the Assessment tab of the Teacher Tools section. This allows teachers to customize assessments to track progression toward learning targets.
	REQUIRED **8b)** Assessment items and tasks are structured on integration of the **three-dimensions**.	**Yes**	Assessment items and tasks are structured on integration of the three-dimensions. For example, the "Why Do Some Things Stop While the Others Keep Going?" unit tasks require student to identify patterns, scales and proportions, and other cross-cutting concepts. An item bank for assessments is provided and teachers can make their own assessment questions. Questions such as, "What happens to the gravitational energy as an object

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
			falls" and "What type of energy conversion is involved when the arrow is released" (based on an image), integrate the three-dimensions of science. For example, in the Physical Science unit, "Why Do Some Things Stop While Others Keep Going?", Lesson 3 question "f" asks students to "Think of another example from everyday life in which kinetic energy and gravitational energy are transformed back and forth. In the space below, draw your example, and mark the energy conversions." This question incorporates the DCI of Conservation and Transfer of Energy (PS3.B), the SEP of Developing and Using Models, and the CCC of Energy and Matter.
	8c) Scoring guidelines and rubrics **align** to performance expectations, and incorporate criteria that are specific, observable, and measurable.	**Yes**	The scoring guidelines support the teachers' objective assessment of students and incorporate criteria that are specific, observable, and measurable. The scoring guidelines and rubrics align with performance expectations. Each lesson provides guidance for activities such as rubrics, visual examples of setup, as well as exemplars. In the Earth Science unit, "How Does Water Shape Our World?", evaluation criteria for scientific explanations can be found in the "Unit Resources" file. The guidance document provides support for teachers who must determine whether students are appropriately interpreting evidence to support a claim. In the Intro to Chemistry unit, "How Can I Make New Stuff From Old Stuff?", there is evaluation criteria for models created in the lessons found in the guidance document in the "Unit Resources" file. Assignments can be digitally scored under the "Student Work" section in "Grade Activity by Student/Question." Scientific principles are available for each unit, as well as images that can be projected for clarity of content.

FINAL EVALUATION

Tier 1 ratings receive a "Yes" in Column 1 for Criteria 1 – 8.

Tier 2 ratings receive a "Yes" in Column 1 for all non-negotiable criteria, but at least one "No" in Column 1 for the remaining criteria.

Tier 3 ratings receive a "No" in Column 1 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.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
Section	**Criteria**	**Yes/No**	**Final Justification/Comments**
I: Non-Negotiables	1. Three-dimensional Learning	**Yes**	The instructional materials are designed so that students can develop scientific skills by interacting with the three dimensions of the science standards. There is an integration of the three dimensions to support mastery of the performance expectations, and they are addressed within minimal isolation.
	2. Phenomenon-Based Instruction	**Yes**	Observing and explaining phenomena and designing solutions in these materials provide the purpose and opportunity for students to engage in learning. Each unit engages students through an anchor-based phenomenon that gives them a context for designing and testing solutions to help explain the world around them, along with a purpose and opportunity to build knowledge about the Disciplinary Core Ideas.
	3. Alignment & Accuracy	**Yes**	Minimal time is spent on content that is outside of this grade.
	4. Disciplinary Literacy	**Yes**	Students regularly engage in speaking and writing about scientific phenomena. Students also use evidence and authentic sources to support their ideas. There is variability throughout the lessons and in the tasks between each unit. Each lesson provides the introduction to, and use of, vocabulary words to build comprehension. The vocabulary is also used during writings and explanations within other activities throughout the unit
II: Additional Indicators of Quality	5. Learning Progressions	**Yes**	The lessons within each unit are organized to support learning through a natural progression. Students are exposed to various levels of rigor as lessons build upon one another in complexity. When applicable, students engage in mathematical thinking that is appropriate for their grade level.
	6. Scaffolding and Support	**Yes**	The support materials for teachers are comprehensive and robust with a variety of components for each lesson and unit. The “Teacher Tools” provides appropriate suggestions and materials for differentiated instruction.

CRITERIA	INDICATORS OF SUPERIOR QUALITY	MEETS METRICS (YES/NO)	JUSTIFICATION/COMMENTS WITH EXAMPLES
	7. Usability	**Yes**	All materials are readily accessible. These materials include laboratory safety guidelines for procedures and for using the equipment. The amount of content for each standard addressed is viable for the school year.
	8. Assessment	**Yes**	Throughout each unit, students encounter multiple types of assessments, both formative and summative. Lessons require students to write, investigate, create models, draw, and express arguments. Assessment items and tasks are structured on the integration of the three-dimensions of the science standards. The scoring guidelines support the teachers' objective assessment of students and incorporate criteria that are specific, observable, and measurable.
FINAL DECISION FOR THIS MATERIAL: **Tier I, Exemplifies quality**			

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

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

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

The 2018-2019 Teacher Leader Advisors are selected from across the state and represent the following parishes and school systems: Ascension, Bossier, Caddo, Central, Desoto, East Baton Rouge, Einstein Charter Schools, Iberia, InspireNOLA, Jefferson, KDHSA (Jefferson Parish Charter), Lafayette, Lincoln, Livingston, Orleans, Ouachita, Pointe Coupee, Rapides, Recovery School District, RSD - Choice Foundation, RSD – FirstLine, RSD – NOCP, St. Charles, St. Mary, St. Tammany, Tangipahoa, Vermilion, West Baton Rouge, West Feliciana, Zachary. This review represents the work of current classroom teachers with experience in grades 3-12.

Appendix I.

Publisher Response

The publisher had no response.

Appendix II.

Public Comments

There were no public comments submitted.