

**Ohio's Quality Review Rubric for Units: Science – Version 2.0**  
**Adapted from Tri-State Quality Review Rubric for Lessons and Units: Version 4.2**  
 Grade: \_\_\_\_\_ Science Lesson/Unit Title: \_\_\_\_\_

I. Alignment to the Depth of Ohio's NLS	Evidence of Alignment	II. Key Areas of Focus in Ohio's NLS	Evidence of Shifts
<ul style="list-style-type: none"> <li><input type="checkbox"/> Aligns with the main concept and the specific descriptions within Ohio's NLS (optional alignment National Framework for K-12 Science Education). Targets a set of grade-level ONLS Science standards for instruction that supports science practices.*</li> <li><input type="checkbox"/> Selects scientifically accurate materials and resources that measures grade-level appropriate content and practices. There are no potential misconceptions presented.*</li> <li><input type="checkbox"/> Content is framed in a context that is relevant to students, significant from a global perspective and requires students to communicate (data/findings/research) to an external audience.</li> <li><input type="checkbox"/> Integrates reading, writing, speaking and listening so that students apply and synthesize advancing literacy skills.*</li> <li><input type="checkbox"/> A coherent selection of texts that builds students' content knowledge, supports scientific practices, infuses reading and writing, and encourages interdisciplinary connections. Incorporates technology and scientific practices to solve and /or evaluate science-based engineering or technological problems. (Include where applicable.)</li> </ul>	<p>* Non-negotiable – These items must be present in the unit in order to be implemented. If not the unit needs to be revised or removed.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Scientific Practices: Instruction designed to build scientific knowledge and practices through student-led investigation must be provided. Testable research questions are generated and used to design procedures and conduct investigations. Results and findings are formally communicated, critiqued and defended. Opportunities for student reflection are provided.*</li> <li><input type="checkbox"/> Reading Scientific Texts Closely: Reading scientific literature, including research investigations, is a central focus of instruction. Content presented can be validated as reliable and authoritative, using reputable and recognized experts in the content area. Contact information and sources are present. Bias is not present.</li> <li><input type="checkbox"/> Increasing Text Complexity: Focuses students on reading a progression of complex scientific materials drawn from the grade-level band. Provides text-centered learning that is sequenced, scaffolded, and supported to advance students toward independent reading of complex texts.*</li> <li><input type="checkbox"/> Research-Based Evidence: Facilitates rich and rigorous evidence-based discussions and writing about common scientific resources through a sequence of specific, thought-provoking, and text-dependent questions (including, when applicable, illustrations, charts, diagrams, audio/video, and media).*</li> <li><input type="checkbox"/> Writing from Sources: Routinely expects that students draw evidence from scientific literature including research investigations to produce clear and coherent writing that informs, explains, or makes an argument in various written forms (notes, summaries, short responses, or formal essays).</li> <li><input type="checkbox"/> Academic Vocabulary: Focuses on building students' scientific vocabulary for concepts and phenomena that have first been explored through scientific investigation.*</li> <li><input type="checkbox"/> Building Disciplinary Knowledge: Provides opportunities for students to build knowledge about a topic or subject through analysis of a coherent selection of strategically sequenced, scientific literature including research investigations.</li> <li><input type="checkbox"/> Balance of Writing: Includes a balance of on-demand and process writing (e.g. multiple drafts and revisions over time) and short, focused research projects, incorporating virtual resources or materials where appropriate.*</li> <li><input type="checkbox"/> Incorporation of Technology: Uses appropriate technology and media strategically and ethically to deepen learning and draw attention to scientific evidence.*</li> </ul>	<p><b>Scientific Practices Outlined</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Testable research questions are formulated. Appropriate variables (independent, dependent and controlled) are identified.</li> <li><input type="checkbox"/> Investigative procedures are appropriate to answer the research question and are clearly written in a way that can be reproduced by others. Methodologies describe appropriate measurements, observations, tools and ways to control relevant variables.</li> <li><input type="checkbox"/> Relevant data (quantitative and/or observational) are collected from multiple repetitions of the investigation within a reasonable experimental range.</li> <li><input type="checkbox"/> Data tables and/or graphs are clearly and accurately presented in ways that highlight trends and patterns, facilitate the analysis and are appropriate for the investigation.</li> <li><input type="checkbox"/> Data analysis is complete, scientifically appropriate and relevant to the inquiry.</li> <li><input type="checkbox"/> Patterns, trends and relationships between variables are clearly and thoroughly described through written and/or oral communication.</li> <li><input type="checkbox"/> Interpretations, models and conclusions are thoroughly explained and are connected to evidence in ways that show insight and depth of understanding.</li> <li><input type="checkbox"/> Investigations are evaluated and critiqued for possible bias and source of error. Suggestions for improvements and further investigations are recommended. Models and conclusions are used to make predictions.</li> </ul> <p>*Non-negotiable – These items must be present in the unit in order to be implemented. If not the unit needs to be revised or removed.</p>

III. Instructional Supports(IS)	Evidence of (IS)	IV. Assessment	Evidence of Assessment
<p>Instructional Shifts need to be interwoven throughout instruction.</p> <ol style="list-style-type: none"> <li>1. Build a deep understanding of content and effectively apply learning within and across disciplines</li> <li>2. Craft responses based on evidence including: demonstrate understanding, explain reasoning and or justify a position.</li> <li>3. Use technology appropriately, strategically and ethically in academic and real-world settings.</li> </ol> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use previous student data to design instruction.*</li> <li><input type="checkbox"/> Cultivates student interest and engagement in reading, writing, and speaking about science.</li> <li><input type="checkbox"/> Defines clear learning targets that build content knowledge using Science’s Cognitive Demands.*</li> <li><input type="checkbox"/> Provides <i>all</i> students with multiple, differentiated opportunities to engage with materials/resources/ investigations/text that are appropriate for the grade level.*</li> <li><input type="checkbox"/> Integrates appropriate supports and extensions including but not limited to reading, writing, listening and speaking for students who are ELL, have disabilities, or read well below or above the grade level.*</li> <li><input type="checkbox"/> Focuses on challenging scientific text, resources and investigations, engaging students in a productive struggle through discussion questions and other supports that build toward independence.</li> <li><input type="checkbox"/> Promotes responses which cite evidence to demonstrate deeper understanding of the content*</li> <li><input type="checkbox"/> Includes a progression of learning where concepts and practices advance and deepen over time.</li> <li><input type="checkbox"/> Provides for authentic learning, application of literacy skills, student-directed inquiry, analysis, evaluation, and/or reflection.</li> <li><input type="checkbox"/> Encourages independent reading based on student choice and interest in science.</li> </ul> <p>Note: As the year progresses, gradually remove supports, requiring students to demonstrate their independent capacities.</p>	<p>* Non-negotiable – These items must be present in the unit in order to be implemented. If not the unit needs to be revised or removed.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Elicits direct, observable evidence of the degree to which a student can independently demonstrate the major targeted grade level Science standards and Cognitive Demands.*</li> <li><input type="checkbox"/> Assesses student proficiency using methods that are unbiased and accessible to all students.</li> <li><input type="checkbox"/> Includes aligned rubrics or assessment guidelines that provide sufficient guidance for interpreting student performance.*</li> <li><input type="checkbox"/> Uses varied modes of assessment, including a range of pre, formative, summative, and student self- assessment</li> </ul>	<p>* Non-negotiable – These items must be present in the unit in order to be implemented. If not the unit needs to be revised or removed.</p>