

Grade 7 Science Instructional Materials Scoring Rubric

Gateway: The publisher must provide a Tennessee standards alignment guide as a part of the scope and sequence for the material. If this gateway is not met, the materials will not be scored. All Tennessee standards must be addressed within the material. If this is not met, the material will not pass review by the Tennessee Textbook and Instructional Materials Quality Commission.

Introduction:

The following Instructional Materials Scoring Rubric for Science is designed to score materials in the following categories:

- Instructional Focus
- Attending to Multiple Dimensions of Science Instruction
- Accessibility Features
- Alignment of Content

Scoring:

Each section is to be scored using a 0, 1, or 2. Use the following scoring guideline.

Tables 1-2:

- Adhere to the provided rubric statements for scoring.

Tables 3-4:

- 0: The standard is not present within the material.
- 1: The standard is present within the material. The intent and/or frequency component of the standard is not fully met.
- 2: A rating of 2 indicates the standard is present and all aspects of the standard are fully met.

Table 1: Instructional Focus					
Directions: Adhere to the provided rubric statements for scoring.					
Indicator	0	1	2	Score	Evidence
<i>Central Phenomenon</i>	Unit has no phenomenon, or only a "hook" to capture student interest at the beginning of the unit.	All units include one or more smaller phenomenon or design challenge(s) and/or not all lessons connect to the phenomenon or design challenge.	All units have a central phenomenon or design challenge that develops throughout every lesson of the unit.		
<i>Activity Purpose</i>	Material contains hands-on activities do not serve to grade-level scientific ideas	Hands-on activities reinforce scientific ideas aligned with grade-level standards.	All hands-on activities serve to uncover scientific ideas aligned with grade level standards.		
<i>Use of Science Engineering Practices (SEPs)</i>	Some units do not provide students opportunities to use the SEPs.	SEPs are present in all units, but loosely or not connected to central phenomenon .	In every unit, the primary use of the SEPs ties directly to explaining the central phenomenon or solving the design challenge.		
<i>Student Engagement</i>	Neither of the given features are present.	One of the given features is present.	Materials give students opportunities to: <ul style="list-style-type: none"> expressly connect the DCI content from each lesson to 		

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Table 1: Instructional Focus					
Directions: Adhere to the provided rubric statements for scoring.					
			relevant crosscutting concepts. <ul style="list-style-type: none"> practice with the SEP that is relevant to that day's lesson. 		
<i>Concepts before vocabulary.</i>	Materials pre-teach vocabulary .	In some instances , materials develop conceptual meaning first.	In all instances , materials provide experiences (e.g., investigations, data analysis, discussions) where students develop conceptual meaning of a scientific idea before introducing technical vocabulary.		
<i>Connections across component ideas.</i>	Materials describe connections for students, or connections are absent.	Some units include standalone questions in place of activities, where students communicate their understanding of connections between component ideas.	All units include activities where students communicate their understanding of connections between science ideas from <i>two or more component ideas</i> within the grade (e.g., LS1.A and LS2.C, ESS2.A and PS1.A).		
<i>Connections across disciplines.</i>	Materials describe connections for students,	Some units include standalone questions in place of activities, where	All units include activities where students communicate their		

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	or connections are absent.	students communicate their understanding of connections between component ideas.	understanding of connections between science ideas from <i>two or more disciplines</i> within the grade (e.g., LS and PS).		
<i>Review opportunities</i>	End of unit review is not anchored to a phenomenon .	End of unit review assesses learning of the central phenomenon for the unit only.	Materials provide opportunities for students to transfer new learning to analogous phenomenon in a review at the end of every unit.		
Total					

Table 2: Attending to Multiple Dimensions of Science Learning					
Directions: Adhere to the provided rubric statements for scoring.					
Indicator	0	1	2	Score	Evidence
<i>Distribution of SEPs as required by the standards</i>	Materials do not include a focal SEP for one or more units.	One or more SEPs are disproportionately featured as the focal SEP.	Materials identify one or more focal science and engineering practices (SEPs) for every unit(s) with a balanced distribution of all SEPs as a focal SEP throughout the units.		

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Table 2: Attending to Multiple Dimensions of Science Learning					
Directions: Adhere to the provided rubric statements for scoring.					
<i>Support for a focal SEP</i>	No student facing or teacher facing supports for the SEPs.	Relevant support strategies are absent from teacher materials.	Every unit contains a focal SEP is featured in student-facing materials and teacher materials including instructional strategies for the particular unit and focal SEP.		
<i>Connections across to crosscutting concepts as required by the standards.</i>	Materials describe connections with CCCs or do not specifically address CCCs.	In every unit students make connection between the CCCs and either the SEPs or DCIs.	In every unit, students make connections between the crosscutting concepts (CCCs) and both the SEPs and disciplinary core ideas (DCIs).		
<i>Developing crosscutting concepts (CCCs)</i>	Materials provide examples of other instances of the CCCs or CCCs absent.	Students make connections between CCCs and content not addressed in other units.	In every unit, the materials lead students to make connections between the CCCs in that unit and appearances of the CCCs in other units.		
Total					

Table 3: Accessibility Features				
Directions: <ul style="list-style-type: none"> 0: The standard is not present within the material. 1: The standard is present within the material. The intent and/or frequency component of the standard is not fully met. 2: A rating of 2 indicates the standard is present and all aspects of the standard are fully met. 				
Digital Materials	0	1	2	Evidence
All lessons within the materials are available in digital form and include a printable option.				
In every lesson, materials include recommended supports, accommodations, and modifications for Students with Disabilities and English language learners that will support their regular and active participation in accessing on grade level material (e.g., modifying vocabulary words within word problems, sentence starters, etc.).				
Total				

Table 4: Alignment of Content				
Directions: <ul style="list-style-type: none"> 0: The standard is not present within the material. 1: The standard is present within the material. The intent and/or frequency component of the standard is not fully met. 2: A rating of 2 indicates the standard is present and all aspects of the standard are fully met. 				
Conceptual Understanding: The materials support the intentional development of students' conceptual understanding of key science ideas, practice, and concepts.	0	1	2	Evidence
7.PS1.1 Evaluate and communicate information that all substances in the universe are made of many different types of atoms that combine in various ways.				
7.PS1.2 Collect and analyze data about the physical properties of the components of a mixture to use as evidence that the identities of the components change during a chemical reaction.				

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7.PS1.3 Develop a model to explain how changes to a system can be explained by changes in temperature and/or pressure and the effect of those changes on particle motion and/or spatial arrangement.				
7.PS1.4 Use computational thinking to demonstrate that all atoms in the reactants are present in the products of a chemical reaction supporting the Law of Conservation of Mass.				
7.PS3.1 Plan and carry out an investigation to demonstrate that the interaction between substances can cause chemical reactions that release or store energy.				
7.PS3.2 Develop a model to explain how food is utilized through chemical reactions to form new molecules that support growth, resulting in the release of energy as matter moves through an organism.				
7.LS1.1 Develop models that identify and explain the structure and function of major cell organelles and structures (i.e., vacuoles, chloroplasts, lysosomes, mitochondria, cell membrane, cell wall, nucleus, cytoplasm) as they contribute to the life activities within a system.				
7.LS1.2 Obtain information about the cellular structures of unicellular and multicellular organisms across kingdoms and domains in order to compare how these structures support the functions (i.e., obtain food, water, waste disposal, and the environment in which they live) of the organism.				
7.LS1.3 Develop and use a hierarchical model of a multicellular organism to explain that the body of humans and other animals is a system of multiple interacting subsystems specialized for particular body functions [e.g., digestion, respiration, excretion, circulation, sensation (nervous and integumentary), locomotion (musculoskeletal), reproduction, and immunity].				

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7.LS1.4 Analyze data to determine the effect of genetic factors (e.g., specific breeds of organisms and their typical sizes) and environmental factors (e.g., food and space availability) that influence the growth of plants and animals.				
7.LS1.5 Obtain and communicate information to provide evidence that illustrates the causal relationships between information received by sensory receptors and behavior, both immediate and over longer time scales.				
7.LS1.6 Develop and use a model (e.g., Punnett squares, diagrams, and simulations) as evidence to demonstrate why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.				
7.LS1.7 Develop a model using evidence that explains the process of photosynthesis, cellular respiration, and anaerobic respiration in the cycling of matter and flow of energy into and out of organisms.				
7.LS2.1 Develop a model to depict the cycling of matter, including carbon and oxygen, and the flow of energy among biotic and abiotic parts of an ecosystem.				
7.LS3.1 Evaluate and communicate information that chromosomes contain many distinct genes which code for the production of proteins, impacting the traits of an individual.				
7.LS3.2 Construct an explanation to describe how the impact of changes to genes (i.e., mutations) located on chromosomes may result in harmful, beneficial, or neutral effects to the structure and function of the organism.				
7.LS3.3 Predict the probability of individual dominant and recessive alleles to be transmitted from each parent to offspring during sexual reproduction and represent the phenotypic and genotypic patterns using ratios.				

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7.ETS1.1 Examine a problem from the medical field (e.g., prosthetic limbs, organ transplants) and design a solution taking into consideration the criteria, constraints, and relevant scientific principles of the problem that may limit				
Total				