

Grade 6 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 		

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		

Grade 6 Science Instructional Materials Scoring Rubric

Table 1: Instructional Focus					
Directions: Adhere to the provided rubric statements for scoring.					
	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.		

Grade 6 Science Instructional Materials Scoring Rubric

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
6.PS3.1 Analyze the sources of energy in a system to gather evidence supporting that energy is conserved during transfers of kinetic, potential (elastic, gravitational, and chemical), and/or thermal energy.				
6.PS3.2 Use a model to gather evidence to support changes to a system can be caused by transfers of sound or thermal energy (i.e., conduction, convection, or radiation).				

Table 4: Alignment of Content

Directions:

- **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.**

6.LS2.1 Use data to evaluate and communicate the impact of environmental variables, both living and nonliving (e.g., food, water, oxygen, and other resources), on population size within a system.				
6.LS2.2 Construct an explanation that predicts patterns of competitive, symbiotic, and predatory interactions among organisms across ecosystems.				
6.LS2.3 Use a model to construct an explanation about the transfer of energy through a food web and energy pyramid in an ecosystem.				
6.LS2.4 Construct an explanation that uses abiotic (e.g., precipitation, temperature, soil) and biotic (e.g., biodiversity, number of organisms) patterns in earth’s terrestrial and aquatic ecosystems (e.g., tundra, taiga, deciduous forest, desert, grasslands, rainforest, marine, and freshwater) as measures of ecosystem health.				
6.LS2.5 Analyze existing evidence about the effect of a specific invasive species on native populations in Tennessee and design a solution to mitigate its impact.				
6.LS4.1 Explain how changes to biodiversity in a system would impact human resources (e.g., food, medicine, and clean water) and “ecosystem services” (e.g., climate stabilization, decomposition of waste, and pollination).				
6.ESS2.1 Diagram oceanic and atmospheric convection patterns in a system that flow due to uneven heating of the earth.				
6.ESS2.2 Gather evidence to justify that oceanic convection currents in a system are caused by the sun’s transfer of thermal energy and differences in salinity leading to global water movement.				
6.ESS2.3 Construct an explanation for how atmospheric flow, geographic features, and ocean currents affect the climate of a region through heat transfer.				
6.ESS2.4 Develop and use a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.				

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. 				
6.ESS2.5 Analyze and interpret data to determine the impact of humans and other organisms on the water cycle, landforms (e.g., rain shadow effect) and atmospheric systems.				
6.ESS2.6 Develop a model to explain the role of greenhouse gases in regulating the Earth’s average surface temperature and keeping it habitable.				
6.ESS2.7 Collect data to provide evidence for how the interactions of air masses result in changes in local weather conditions and how that data can be used to predict probable local weather patterns.				
6.ESS3.1 Use data to explain the consumption and sustainability of natural resources (non-renewable and renewable) and the resulting impact on Earth’s system.				
6.ESS3.2 Investigate and compare existing and developing technologies that utilize renewable and alternative energy resources.				
6.ESS3.3 Obtain, evaluate, and communicate information about the impacts of human activities on the biosphere including conservation, habitat management, species endangerment, and extinction.				
6.ETS1.1 Design, evaluate, and improve a possible solution for maintaining biodiversity of ecosystems.				
6.ETS1.2 Design, construct, and test a device that either minimizes or maximizes thermal energy transfer by combining solutions or parts of solutions to solve a problem that can be communicated and explained to others.				
Total				