Department of Education

SEVENTH GRADE SCIENCE INSTRUCTIONAL MATERIALS SCREENING INSTRUMENT

SECTION I: NON-NEGOTIABLE ALIGNMENT CRITERIA

All submissions must be aligned to the Tennessee Science Standards and therefore must meet the non-negotiable criteria of Section I prior to moving to Section II.

Note: The Tennessee standards including the introduction and grade level standards appropriate to this screening instrument and this screening instrument should be read in full prior to reviewing materials. Evaluators of materials must be well versed in the standards for the grade/course(s) aligned to the materials in question, how the content fits into the progressions in the content standards, and the expectations of the standards.

SEVENTH GRADE
SECTION I: NON-NEGOTIABLE ALIGNMENT CRITERIA

All submissions must be aligned to the Tennessee State Science Standards and therefore must meet 100% of the non-negotiable criteria of Section I prior to moving to Section II.

SECTION I. Alignment to Tennessee State Science Standards ***Part A.*** The instructional materials represent 100% alignment with the Tennessee State Science Standards and explicitly focus teaching and learning on the grade level standards and disciplinary core ideas (DCIs) at a level of rigor necessary for students to reach mastery:			
7.PS1: Matter and Its Interactions	**Yes**	**No**	**Evidence (e.g., page numbers and/or examples of inclusion)**
1) Develop and use models to illustrate the structure of atoms, including the subatomic particles with their relative positions and charge.			
2) Compare and contrast elemental molecules and compound molecules.			

3) Classify matter as pure substances or mixtures based on composition.			
4) Analyze and interpret chemical reactions to determine if the total number of atoms in the reactants and products support the Law of Conservation of Mass.			
5) Use the periodic table as a model to analyze and interpret evidence relating to physical and chemical properties to identify a sample of matter.			
6) Create and interpret models of substances whose atoms represent the states of matter with respect to temperature and pressure.			
7.LS1: From Molecules to Organisms: Structures and Processes	**Yes**	**No**	**Evidence (e.g., page numbers and/or examples of inclusion)**
1) Develop and construct models that identify and explain the structure and function of major cell organelles as they contribute to the life activities of the cell and organism.			
2) Conduct an investigation to demonstrate how the cell membrane maintains homeostasis through the process of passive transport.			
3) Evaluate evidence that cells have structural similarities and differences in organisms across kingdoms.			

4) Diagram the hierarchical organization of multicellular organisms from cells to organism.			
5) Explain that the body is a system comprised of subsystems that maintain equilibrium and support life through digestion, respiration, excretion, circulation, sensation (nervous and integumentary), and locomotion (musculoskeletal).			
6) Develop an argument based on empirical evidence and scientific reasoning to explain how behavioral and structural adaptations in animals and plants affect the probability of survival and reproductive success.			
7) Evaluate and communicate evidence that compares and contrasts the advantages and disadvantages of sexual and asexual reproduction.			
8) Construct an explanation demonstrating that the function of mitosis for multicellular organisms is for growth and repair through the production of genetically identical daughter cells.			
9) Construct a scientific explanation based on compiled evidence for the processes of photosynthesis, cellular respiration, and anaerobic respiration in the cycling of matter and flow of energy into and out of organisms.			
7.LS2: Ecosystems: Interactions, Energy, and Dynamics	**Yes**	**No**	**Evidence (e.g., page numbers and/or examples of inclusion)**

1) Develop a model to depict the cycling of matter, including carbon and oxygen, including the flow of energy among biotic and abiotic parts of an ecosystem.			
7.LS3: Heredity: Inheritance and Variation of Traits	**Yes**	**No**	**Evidence (e.g., page numbers and/or examples of inclusion)**
1) Hypothesize that the impact of structural 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.			
2) Distinguish between mitosis and meiosis and compare the resulting daughter cells.			
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.			
7.ESS3: Earth and Human Activity	**Yes**	**No**	**Evidence (e.g., page numbers and/or examples of inclusion)**
1) Graphically represent the composition of the atmosphere as a mixture of gases and discuss the potential for atmospheric change.			
2) Engage in a scientific argument through graphing and translating data regarding human activity and climate.			
7.ETS2: Links Among Engineering, Technology, and Applications of Science	**Yes**	**No**	**Evidence (e.g., page numbers and/or examples of inclusion)**

1) Examine a problem from the medical field pertaining to biomaterials and design a solution taking into consideration the criteria, constraints, and relevant scientific principles of the problem that may limit possible solutions.			

SECTION I. Alignment to Tennessee State Science Standards ***Part B. Focus:*** Instruction centers on the DCIs, SEPs, and CCCs at the level articulated within the standards.			
	Yes	**No***	*** Evidence of extraneous or scientifically inaccurate materials**
Materials focus on the grade level standards (i.e., do not include information outside of the scope of the grade level standards or disconnected facts and details).			
Materials are scientifically accurate and grade level appropriate.			
Part C. Rigor: Supports the intertwined three-dimensional nature of the Tennessee State Standards (DCIs, SEPs, CCCs) through the integration of conceptual understandings linked to explanations and empirical investigations within each grade level disciplinary core idea (DCI).			
	Yes	**No**	**Evidence (include evidence of three-dimensional integration within each of the disciplinary core ideas below)**
Physical Sciences (PS)			
Life Sciences (LS)			
Earth and Space Sciences (ESS)			
Engineering, Technology, and Applications of Science (ETS)			
Additional comments on three-dimensional nature of the materials:			
Part D. Coherence: Provides learning experiences that support a progression of student competencies and skills through active engagement in SEPs and CCCs and continuous refinement of knowledge and abilities in each DCI.			
	Yes	**No**	**Evidence (include evidence of knowledge and skill progression within units, grade level, and between grade levels)**

Physical Sciences (PS)			
Life Sciences (LS)			
Earth and Space Sciences (ESS)			
Engineering, Technology, and Applications of Science (ETS)			
Additional comments on progression(s) within materials:			

SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY

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SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY ***Part A. Key Areas of Focus***			
	Yes	**No**	**Evidence**
Rigor: Learning experiences provide opportunities for thought, discourse, and practice in an interconnected and social context.			
Coherence: Units and instructional sequences are coherent and organized in a logical manner that builds upon knowledge and skills learned in prior grades or earlier in the year.			
Literacy: Supports student communication within a scientific context through providing consistent opportunities for students to utilize literacy skills in reading, writing, vocabulary, speaking and listening.			

SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY ***Part B. Student Engagement and Instructional Supports*.**			
	Yes	**No**	**Evidence and/or comments**
a. Provides learning experiences that incorporate the three dimensions of the standards (i.e., each of the dimensions is learned in the context of the other two and not taught in isolation).			
b. Engages students through real-world, relevant, thought-provoking questions, problems, and tasks that stimulate interest and elicit critical thinking and problem solving.			
c. Adheres to safety rules and regulations where appropriate and provides a thorough list of materials as needed.			
d. Integrates appropriate supports for students who are ELL, have disabilities, or perform below grade level.			
e. Includes differentiated materials that provides support for students approaching mastery as well as extensions for students already meeting mastery or with high interest.			

SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY ***Part C. Monitoring Student Progress***			
	Yes	**No**	**Evidence and/or comments**
a. Assessments collect data on all three dimensions and allow students to show mastery on using the dimensions in concert with each other (e.g., assessments are contextualized and serve to address specific problems or answer specific questions).			
b. Assesses student mastery using methods that are unbiased and accessible to all students.			
c. Includes aligned rubrics or scoring guidelines that provide sufficient guidance for interpreting student performance.			
d. Uses varied modes of curriculum embedded assessments that may include pre-, formative-, summative-, and self-assessment measures.			
e. Assessments are embedded throughout instructional materials as tools for students' learning and teachers' monitoring of instruction.			
f. Assessments provide teachers with a range of data to inform instruction.			

SECTION II: ADDITIONAL ALIGNMENT CRITERIA AND INDICATORS OF QUALITY ***Part D. Teacher Support Materials***			
	Yes	**No**	**Evidence**
a. Provides grade-level background information and context to guide integration of the three dimensions within the lessons, units, and grade.			
b. Includes strategies that assist teachers in incorporating appropriate and integral connections between science and other subject areas (e.g., mathematics, ELA, social studies, visual and performing arts, CTE)			
c. Provides strategies and guidance to support the inclusion of "hands-on" practices (e.g., carrying out investigations, designing solutions) with other practices (e.g., asking questions, engagement in argument).			
d. Strategies included to assist teachers in identifying student misconceptions and the reason(s) that prevent student mastery of the three dimensions within the standards.			
e. Includes strategies to help teachers identify ways in which activities or learning experiences can be contextualized to the school environment (e.g., place- based learning experiences).			