2024 Instructional Material Summer Review Institute

Review Team Appraisal of Title

Grades 9-12 Physics

This appraisal form is provided for use by educators responsible for the selection of instructional materials for implementation with districts and charter schools across New Mexico to meet the need of their student populations.

NMPED Adoption Information

Text Title	Experience Physics -- Hardcover Student Edition with 6-Year Digital License	Publisher	Savvas Learning Company, LLC
SE ISBN	9781418345877	TE ISBN	9781418333973
SW ISBN		Grade Level/Content	Grades 9-12 Physics

Core Instructional Material Designation *(Core Instructional Material is the comprehensive print or digital educational material, including basal material, which constitutes the necessary instructional components of a full academic course of study in those subjects for which the department has adopted content standards and benchmarks.)*

Recommended (90% and above)	☐	**Recommended with Reservations** (80-89%)	☑	**Not Recommended and Not Adopted** (below 80%)	☐

Total Score - *The final score for the materials is averaged between the team of reviewers.*

Average Score
81%

Cultural and Linguistic Relevance Recognition - *Materials are reviewed for relevant criteria pertaining to the support for teachers and students in the material regarding cultural relevance and the inclusion of a culturally responsive lens. Those materials receiving a score of 90% or above on the CLR portion of the review are recognized as culturally and linguistically relevant.*

CLR Recognized ☐

Average Score
70%

FOCUS AREA 6: CULTURAL AND LINGUISTIC PERSPECTIVES
Instructional materials represent a variety of cultural and linguistic perspectives.
Statements of appraisal and supporting evidence:

The materials provide extensive opportunities and support for all students to explore key concepts, considering cultural and linguistic perspectives. Investigation sub-units start with hook questions that often ask students to refer to their own experience. Classroom discussions and teamwork are parts of some of the text and online activities, and online materials have translation options. Photos and illustrations in the text and online materials appear to represent a broad spectrum of genders, groups, and races/ethnicities. No generalizations or stereotypes are observed. Some images are included that seem to counter stereotypes. However, explicitly culturally and linguistically responsive materials are not observed.

FOCUS AREA 7: INCLUSION OF CULTURALLY AND LINGUISTICALLY RESPONSIVE LENS
Instructional materials highlight diversity in culture and language through multiple perspectives.
Statements of appraisal and supporting evidence:

The materials include activities that are available for students to work together and share viewpoints and feedback that would allow perspectives to be shared. Student presentations are featured in several chapters, which would allow peer viewpoints to be shared on specific concepts. Each Investigation starts with hook questions that ask students to use their background knowledge and experience to critically reflect on big questions about the standards addressed in that sub-unit. However, information related to New Mexico is not found. Various cultures and ethnicities are shown in photos, illustrations, and some of the career descriptions in text and online, but descriptions, interpretations, and perspectives related to this are not found.

Science Standards Review - *Materials are reviewed for alignment with the state adopted content standards, benchmarks and performance standards. The science standards include the performance expectations (PEs), disciplinary core ideas (DCIs), science and engineering practices (SEPs), crosscutting concepts (CCCs), and connections (CONNs) of the Next Generation Science Standards (NGSS). They also include the six NM StemReady! science standards.*

Average Score
81%

OVERALL ALIGNMENT
Materials align with the science standards overall.
Statements of appraisal and supporting evidence:

The materials align with the science standards, promote critical thinking, inquiry-based learning, align with the core concepts and provide hands-on learning and virtual learning opportunities. The digital and text materials are laid out in a 5E model that provides a consistent instructional framework. However, specific guidance is lacking for some student activities and overarching concepts are sometimes not tied to the underlying concepts. In addition, the earth science standards do not always tie to the physical science standards.

FORCES AND INTERACTIONS
Materials align to the physical science performance expectations (PEs) and related components (DCIs, SEPs, CCCs, CONNs, and NM Standards) for this focus area.
Statements of appraisal and supporting evidence:

The instructional materials align with the standards related to forces and interactions, and provide activities for students to practice and experience them. Basic concepts such as Newton's laws and gravitational forces are partially aligned, lacking depth in covering advanced topics like electromagnetic forces, momentum, and cause versus correlation.

ENERGY
Materials align to the physical science performance expectations (PEs) and related components (DCIs, SEPs, CCCs, CONNs, and NM Standards) for this focus area.
Statements of appraisal and supporting evidence:

The materials provide many activities for students to visualize and interact with energy concepts. The materials effectively introduce concepts such as kinetic and potential energy and conservation of energy. The materials partially align with the science standards. An overall definition of energy and how it relates to all the specific energy types and transfer is lacking.

WAVES AND ELECTROMAGNETIC RADIATION
Materials align to the physical science performance expectations (PEs) and related components (DCIs, SEPs, CCCs, CONNs, and NM Standards) for this focus area.
Statements of appraisal and supporting evidence:

The instructional materials align with the science standards for waves and electromagnetic radiation. The instructional materials require students to relate concepts of waves and electromagnetic radiation to mathematical and graphical representations, and to use the concepts in lab activities. The material describes constructive and destructive wave interference but lacks qualitative information on how waves emerge unaffected by each other.

SPACE SYSTEMS
Materials align to the earth and space science performance expectations (PEs) and related components (DCIs, SEPs, CCCs, CONNs, and NM Standards) for this focus area.
Statements of appraisal and supporting evidence:

Overall, the material align with concepts of the Big Bang theory, stars, the sun, and orbital movement. Specific details related to light spectra and how it helps determine star composition, a full definition of the sun and its lifespan, and conservation of energy are lacking.

HISTORY OF EARTH
Materials align to the earth and space science performance expectations (PEs) and related components (DCIs, SEPs, CCCs, CONNs, and NM Standards) for this focus area.
Statements of appraisal and supporting evidence:

The instructional materials align with the history of earth and its related topics. The material is thorough in explaining radiometric dating and its limitations. The materials introduce basic earth processes, have detailed sections on both continental and oceanic crusts, and the inner composition of the earth. Plate tectonics is discussed in several sections, but not as a unifying theory; nor is it explain how plate tectonics distribute rocks.

EARTH'S SYSTEMS **Materials align to the earth and space science performance expectations (PEs) and related components (DCIs, SEPs, CCCs, CONNs, and NM Standards) for this focus area.** *Statements of appraisal and supporting evidence:*
The instructional materials align with the Earth's Systems standards overall. The student edition relates heat convection to energy and thermal conductivity and the thickness and composition of earth's layers. Seismic waves are also discussed, along with how scientists use them to get information from below earth's surface. Radioactive decay is explained in terms of inner core and mantle temperature and how it relates to thermal cycling in the earth. The materials do not fully relate global heat flow to the global climate system.
ENGINEERING DESIGN **Materials align to the engineering design performance expectations (PEs) and related components (DCIs, SEPs, CCCs, CONNs, and NM Standards) for this focus area.** *Statements of appraisal and supporting evidence:*
The instructional materials align with the engineering design throughout, especially the digital resources online. Every sub-unit contains an activity in the online modules called an "Engineering Workbench" that requires students to research and design solutions. The student workbook also provides engineering activities, such as examining the design of an amusement park ride that needs to spin fast enough for riders to stick to a wall when the ride floor falls out.
CCSS for ELA and Math in Grades 9-12 NGSS **Materials align to the ELA and math standards identified in grades 9-12 Physics NGSS.** *Statements of appraisal and supporting evidence:*
The materials align with the ELA and mather standards identified. The materials provide content-specific opportunities for writing, student presentations, data and argument analysis, CER, peer feedback, tutorial videos, and math support and practice throughout all instructional components. Some activities do not specify the requirements that students should follow, especially in the ELA content; for example, that students must use both text and digital sources, use a specific format for citations, have multiple sources, not plagiarize, or include specifics about attending to units of measure.

Science Content Review- *Materials are reviewed against relevant criteria pertaining to the support for teachers and students in the specific content area reviewed.*

Average Score
91%

FOCUS AREA 1: PHENOMENA-/PROBLEM-BASED AND THREE-DIMENSIONAL APPROACH
Instructional materials are centered around high quality phenomena and/or problems and require a three dimensional approach to make sense of the phenomena or to solve the problems.

The materials are structured around phenomena and incorporate the three-dimensions throughout and are detailed in the teacher's edition provided for lesson planning. The digital resources provide opportunities for problem-based learning activities. However, the math and writing CCSS are not as integrated in overall lesson structure, as shown in the teacher edition.

FOCUS AREA 2: THREE-DIMENSIONAL ASSESSMENT
Assessments provide tools, guidance and support for teachers to collect, interpret and act on data about student progress toward the learning goals of the 3 dimensional standards.

The instructional materials provide opportunities for assessment. Every investigation concludes with an assessment that connects to digital activities that actively assess and engage students, while allowing assessment and review of the lesson DCIs, CCCs, and SEPs. CER assignments have a peer feedback component that includes review of feedback and revision before submission.

FOCUS AREA 3: TEACHER SUPPORTS
Materials include opportunities for teachers to effectively plan and utilize materials.

The teacher's edition supports planning in providing suggestions for differentiated instruction for advanced and struggling students, as well as suggestions for remedial instruction. The Inquiry Lab instructions provide teachers with background material and provide a lab overview video via digital resources, give guidance on choosing different lab versions, list the needed supplies, and address safety and outcomes.

FOCUS AREA 4: STUDENT CENTERED INSTRUCTION
Materials are designed for each student's regular and active participation in science content.

The materials are designed to encourage each student's regular and active participation in science content by providing phenomena that engage students, but may not be applicable to all students. The materials include resources and activities to include students with diverse learning styles and abilities by accessing prior knowledge, working in teams, and differentiated questioning.

FOCUS AREA 5: EQUITY
Materials are designed for all learners.

The materials provide access for all learners, such as having more UDL support for students who need them. The Support Reflection section is found throughout the text and gives several ways to support student access and reflection on the materials. Lessons provide multi-modal ways of teaching, such as text, video, labs, and simulations.

All Content Review - *Materials are reviewed against relevant criteria pertaining to the support for teachers and students in the material regarding the progression of the standards, lesson structure, pacing, assessment, individual learners and cultural relevance.*

Average Score
80%

FOCUS AREA 1 COHERENCE:
Instructional materials are coherent and consistent with the New Mexico Content Standards that all students should study in order to be college- and career-ready.
Statements of appraisal and supporting evidence:

The teacher materials include a storyline planner that includes an introduction and the associated NGSS along with instructions on how to connect the materials to DCIs, CCCs, and SEPs, including extension and differentiation activities. The student-facing materials follow DCIs throughout the chapters, with SEP and CCC activities on almost every content page. The materials are high school appropriate, and tell teachers how to know if students are ready for the upcoming unit's content. However, standards are not specifically listed in the student edition for students' reference.

FOCUS AREA 2 WELL-DESIGNED LESSONS:
Instructional materials take into account effective lesson structure and pacing.
Statements of appraisal and supporting evidence:

The materials integrate various instructional strategies using the 5E model and incorporate real-world applications with lessons that foster critical thinking and problem-solving skills. Pacing guides that include appropriate timeframes, associated activities, and standards are included in the teacher edition. Investigation objectives are listed in the teacher edition, but are lacking in the student edition. Throughout the materials, there is inconsistent spiraling in knowledge gained from previous lessons.

FOCUS AREA 3 RESOURCES FOR PLANNING:
Instructional materials provide teacher resources to support planning, learning, and understanding of the New Mexico Content Standards.
Statements of appraisal and supporting evidence:

The teacher materials provide supports for planning, including Related Phenomena, Take It Local, Hook & Inspire, Integrate the Three Dimensions, Math Support, and Address Misconceptions. There is also a "Student Handbook" section that has a list of activities to assign after students have read their textbooks with suggestions of how to use the activities and how to link them with the student content. Also available to teachers in the digital resources are videos, PhET simulations, interactive activities, and online assessments, with suggestions for use in the teacher edition. While the materials do have the Take it Local suggestions that have students consider various concepts to what is around them, they do not provide suggestions on how to incorporate the New Mexico-specific standards.

FOCUS AREA 4 ASSESSMENT:
Instructional materials offer teachers a variety of assessment resources and tools to collect ongoing data about student progress related to the standards.
Statements of appraisal and supporting evidence:

The materials support educators in monitoring student learning through formative assessments, quizzes, and project evaluations. Various formats of assessments are available, such as the "Assess on the Spot" formative assessments and online summative quizzes. Assessments are at the end of chapters, but chapters are not aligned specifically to standards. Standards are only aligned at the Investigation (sub-unit) level in the Storyline Planners. Assessments in the digital materials are scored online and the teacher materials provide guidelines on the quizzes regarding how to use the scoring notes and remediation strategies to assess student responses. However, these do not appear to be standards-aligned, unless that is in the scoring notes which are not seen in the materials.

FOCUS AREA 5 EXTENSIVE SUPPORT:
Instructional materials give all students extensive opportunities and support to explore key concepts.
Statements of appraisal and supporting evidence:

Throughout the teacher edition material, customization options are provided for differentiation on several levels, such as sections in each chapter on Classroom Modifications, Address Misconceptions, Differentiate Instructions, Math Support, and WIDA support. There are linguistic supports as well as accommodations and modifications contained throughout the teacher edition. However, supports for ELs and CLDs appear to be limited in print to the WIDA support boxes within the teacher edition. Online materials can be translated into multiple languages and include tools for annotation. There are no apparent resources that connect parents or invite family involvement.

FOCUS AREA 6 CULTURAL AND LINGUISTIC PERSPECTIVES: **Instructional materials represent a variety of cultural and linguistic perspectives.** *Statements of appraisal and supporting evidence:*
The materials provide extensive opportunities and support for all students to explore key concepts, considering cultural and linguistic perspectives. Investigation sub-units start with hook questions that often ask students to refer to their own experience. Classroom discussions and teamwork are parts of some of the text and online activities, and online materials have translation options. Photos and illustrations in the text and online materials appear to represent a broad spectrum of genders, groups, and races/ethnicities. No generalizations or stereotypes are observed. Some images are included that seem to counter stereotypes. However, explicitly culturally and linguistically responsive materials are not observed.
FOCUS AREA 7 INCLUSION OF CULTURALLY AND LINGUISTICALLY RESPONSIVE LENS: **Instructional materials highlight diversity in culture and language through multiple perspectives.** *Statements of appraisal and supporting evidence:*
The materials include activities that are available for students to work together and share viewpoints and feedback that would allow perspectives to be shared. Student presentations are featured in several chapters, which would allow peer viewpoints to be shared on specific concepts. Each Investigation starts with hook questions that ask students to use their background knowledge and experience to critically reflect on big questions about the standards addressed in that sub-unit. However, information related to New Mexico is not found. Various cultures and ethnicities are shown in photos, illustrations, and some of the career descriptions in text and online, but descriptions, interpretations, and perspectives related to this are not found.

Reviewers' Professional Summary - *These materials are reviewed by Level II and Level III educators from across New Mexico. The reviewers have brought their knowledge, experience and expertise into the review of these materials. They offer here their individual summary of the material as a whole.*

Reviewer #: 94

Background and experience:

I am a Level III certified secondary teacher with endorsements in science, math, ELA, social studies, and business education. I have a Bachelor of Science degree in biology and a Master of Business Administration and have taught middle school and high school classes in science (HS Physics and Biology), math (sixth-grade math and honors math, HS Algebra, HS Math Strategies, and HS Geometry), business (MS Business Technology), and social studies (HS New Mexico History). Prior to teaching, I spent over 15 years in biomedical research and management before deciding to become a teacher, then completed my secondary education certificate at Santa Fe Community College.

Professional summary of material:

The title is recommended with some reservations. The material is robust and covers the physics standards well, including the earth science part of the standards. Connections are made to math and ELA, students' backgrounds, and local application of the information. The online materials are extensive and provide additional tools for students and teachers. In some assignment requirements, there is a lack of detail, especially regarding ELA exercises, and in presenting overarching concepts and unifying theories to fully connect the content and show students the higher level of connection of theories to each other and their broader application. The teacher edition has many supports and ideas for teachers to use to adapt and extend their lessons but the teacher edition is not easy to cross-walk with the student edition or the online materials. The materials are unbiased and work to counter stereotypes, yet do lack explicit connections to cultural and linguistic diversity and to New Mexico.

Reviewer #: 95

Background and experience:

I am a Level III science teacher, endorsed in both TESOL and science, with 23 years of classroom experience. My teaching career spans across Texas and New Mexico, where I have instructed students in all science content areas at both middle and high school levels. I hold a Bachelor of Science degree from New Mexico State University, teacher certification from the University of Texas at El Paso, and a master’s degree in education from Eastern New Mexico University.

Professional summary of material:

The material comprehensively covers physics standards while integrating earth science concepts where relevant. The digital resources feature a variety of interactive components, including virtual labs, guided inquiry-based experiments, advanced lab exercises, and tutorials. The e-text incorporates numerous tools, such as translation features and multiple writing and math components, including Claim, Evidence, Reasoning (CER) frameworks. Additionally, the resources provide opportunities for peer feedback. Limitations include navigating from the teacher edition to the student edition and the digital resources. Furthermore, certain areas lack sufficient detail for effective teacher implementation of the assignment, and connections to the New Mexico standards and the diverse cultures found in New Mexico are not made.

Reviewer #: 96

Background and experience:

I am a Level III science and special education teacher with endorsements in TESOL, science, and special education. I have a bachelor's in secondary education, majoring in physics and technology from Bukidnon, Philippines; a Master of Arts in Education, majoring in science and technology, from the University of the Visayas, Cebu, Philippines; a Master's in Education in Special Education; and a Doctor of Philosophy in Educational Leadership and Management. I have taught middle school and high school classes in science with 22 years of experience.

Professional summary of material:

The instructional materials are comprehensive, addressing both physics and earth science standards while integrating connections to mathematics, ELA, student backgrounds, and local relevance. The online resources are extensive, offering supplementary tools for students. However, some assignment requirements lack detail, particularly regarding ELA expectations, and clearer presentation of overarching concepts and unifying theories is needed to demonstrate deeper connections and broader applications to students. The teacher edition provides ample support and innovative ideas for lesson adaptation and extension, though it may not be as intuitive to navigate as other components of the materials.