2024 Instructional Material Summer Review Institute

Review Team Appraisal of Title

Grades 6-8 Physical Science

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	1-Year Digital License only—Discipline: Physical Science (one per student) Student Digital License (Volume 9-12)	Publisher	Twig Education Inc.
SE ISBN	9798889502784	TE ISBN	9781800847095
SW ISBN	9781800849464	Grade Level/Content	Grades 6-8 Physical Science

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
	88%

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
	95%

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

The instructional materials present a variety of cultural and linguistic experiences as evidenced by various perspectives shown in video content, images, and published works. The materials provide opportunities for students to reflect on experiences. Students can make connections to real-life experiences during discussions (Think-Talk), peer sharing, and prior knowledge activation.

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 give support throughout for English learners at emerging, expanding, and bridging proficiency levels. All materials are available in Spanish. The materials, such as videos and articles, present various perspectives on concepts. The materials require student reflection, revision of work, and integrates personal and cultural experiences. Perspectives from around the world are found throughout the materials.

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
86%

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

The materials align with the NGSS for physical science as seen in the numerous hands-on labs, engineering design projects, charts, graphs, and digital interactives with opportunities for reflection and revision of work for content standard mastery. The teacher edition shows the scope of the middle school standards alignment for the entire title. However, not every standard is fully addressed throughout the materials.

MATTER AND ITS 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 materials align with the NGSS for matter and its interactions by addressing individual components related to performance expectations. The materials include various approaches to presenting the content. For example, the "Life Through the Lens Module" provides for the exploration of eight of the matter and interaction NGSS. However, all matter and interactions standards are not addressed fully by the materials, specifically matter and energy flows.

MOTION AND STABILITY: 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 materials align with the NGSS for motion and stability: forces and interactions by detailing various approaches to how matter and energy interact by exploring forces of gravity and magnetic and electromagnetic fields, including wave type and wave interactions. For example, in the "Collision Course Module", students are asked to develop and improve a model to minimize forces during a collision.

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 align with the NGSS for energy by showing elemental chemical reactions and exploring chemical combinations and energy flow within systems. For example, in the "Science on the Main Stage Module", students are asked to formulate and observe conservation of mass through chemical reactions.

WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER
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 align with the NGSS for waves and their applications in technologies for information transfer by the study of analog and digital signal development to increase information transfer. For example, in the "Animal Tracks Module", students are asked to write a research proposal that requires scientific and technical information writing on how the structures of analog and digital signals communicate with GPS satellites and how they are used to track animal movement.

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 materials align with the NGSS engineering design requirements by providing opportunities for students to build, construct, test, and revise models both digitally and hands-on for greater depth of knowledge. For example, in the “Turtle SOS Module”, students are required to design, build, and test multiple iterations of a turtle egg incubator that protects and maintains temperature for proper development of turtle eggs. Engineering criteria and constraint problems are a focus of this module.
CCSS for ELA/Literacy and Math Grades 6-8 NGSS **Materials align to the ELA and math standards identified in grades 6-8 Physical Science NGSS.** *Statements of appraisal and supporting evidence:*
The materials incorporate CCSS for ELA and math in grades 6-8 NGSS. Math and ELA standards are integrated throughout the instructional materials. Students are required to read and analyze scientific texts, cite specific information, and reference evidence from their observations to support claims including mathematical calculations for reasoning and argument defense.

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
93%

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 centered around phenomena and problem-based tasks and require a three-dimensional approach for sense making. Students are asked to solve problems and think critically to provide evidence in each lesson to complete three-dimensional components. This includes reflections, assessments, and hands-on activities.

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.

Three-dimensional assessments provide the teachers the necessary tools, guidance, and support to interpret and monitor data on student progress toward the NGSS. The instructional materials provide rubrics, assessment guides, teacher look-fors, and teacher feedback opportunities. Formative and summative assessments are provided throughout the lessons. Next step actions are available for teacher guidance. Also included are guides for modification and adaptation of assessments for diverse learning populations without losing assessment rigor.

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

The materials include opportunities for teachers to effectively plan through the use of pacing guides and charts with standards. Standards are cross-referenced at the beginning of each lesson through the use of pre-assessment. The 5E (Engage, Explore, Explain, Evaluate and Extend) instructional flow is provided, including time required to complete lessons. Many tools are provided in the teacher edition digital materials that include the teacher prep tab and guiding questions with student answers. The material offers extensions for those exceeding grade level and supports for English learners and students who are not at grade level.

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

The materials are designed for each student's active engagement in science content. Opportunities are provided for students to produce, critique and refine their work. Students are involved with interactive activities, hands-on labs, digital labs, peer critique and design challenges. Guides are provided for diverse learner populations in both print and digital teacher editions.

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

The instructional materials are designed for learners from diverse populations. Multilingual materials, scaffolds, pedagogical supports, and advanced practices are present. The materials offer multiple perspectives in each module and lesson. The instructional materials support English learners and culturally and linguistically diverse students. There are various strategies provided for special needs students. The instructional materials are available in Spanish, in both digital and print formats.

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
98%

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 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. The instructional materials offer a look at various areas of study and career pathways. A chart that references and connects students' prior knowledge to their current learning and previews future learning is found in the teacher edition.

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

The instructional materials provide effective lesson structure and pacing by including approximate timelines for the completion of lesson components. Guidance is also given for teachers to prepare for the lessons and lists needed materials. Graphics in the instructional materials, both teacher and student, are clear, relatable and easy to find. Strategies are provided for modification of lesson structure to accommodate diverse learners.

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 instructional materials provide teacher resources to support planning, learning, and understanding of the New Mexico content standards. Teacher professional learning is embedded in the materials. Digital and print materials are well outlined with planning strategies needed for content materials and timelines. Teacher resources include looks-fors, the availability of rubrics and pre-planned questioning.

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 instructional materials contain a variety of assessment resources and tools to monitor student progress related to the standards. The online assessment library is searchable by standard and grade level, and can be modified to meet the needs of students from diverse populations. The digital materials provide an online gradebook with assignments and assessments embedded throughout. Formative and summative assessments are provided in the student edition. The assessment report tab in the digital teacher edition provides for the assigning and tracking of all assessments.

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

The instructional materials give all students extensive opportunities to explore key concepts. Support is given throughout the text for modifying instruction and assessment for diverse student populations. Honors and extension activities are provided for students who are performing above grade level. The materials provide opportunities for all students to participate in whole class discussion, small group activities, peer critique, and hands-on labs. Family outreach letters are provided throughout the materials to engage all stakeholders and inform them about their students' learning.

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

The instructional materials present a variety of cultural and linguistic experiences as evidenced by various perspectives shown in video content, images, and published works. The materials provide opportunities for students to reflect on experiences. Students can make connections to real-life experiences during discussions (Think-Talk), peer sharing, and prior knowledge activation.

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 give support throughout for English learners at emerging, expanding, and bridging proficiency levels. All materials are available in Spanish. The materials, such as videos and articles, present various perspectives on concepts. The materials require student reflection, revision of work, and integrates personal and cultural experiences. Perspectives from around the world are found throughout the materials.

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 #: 58

Background and experience:

The reviewer is a Level II teacher with 21 years of teaching experience. The reviewer holds a bachelor's degree in elementary education with endorsements in all core subjects and has a background in educational psychology. The reviewer's teacher experience includes kindergarten, reading specialist 4th grade, math, science, social studies and English language arts 6th grade; math, science and social studies 7th grade; and math and science 8th grade. Currently, the reviewer is a teacher of MESA, business technology and 8th grade science. The reviewer has been selected to be a judge for the International Science and Engineering Fair. The reviewer was selected for the Academy for Creating Teacher Scientists Educational Outreach program sponsored by the Department of Energy through Sandia National Laboratory with focus on sustainability. The reviewer has worked with NMPED on science standards alignment and curriculum development prior to the adoption of the NGSS. The reviewer currently teaches at a public middle school.

Professional summary of material:

Twig Middle School Physical Science materials are an engagement of the content for students of a diverse learning community. Although not all standards are fully addressed, the NGSS, New Mexico content standards, and Common Core State Standards for math and English language arts are found and referenced at the beginning of each lesson. The instructional materials also connect prior, current and future learning standards to show the science standards continuum. The instructional materials are presented in both English and Spanish with ongoing support for both teacher and student. Multiple assessment formats, scaffolding, modifications for diverse learning levels with pacing guides, rubrics and professional learning support are found in each lesson. The instructional materials give teachers a full awareness of, and ability to, adjust to the needs of students. The instructional material is integrated with videos, published work, real-life experiences, hands-on activities, and digital interactives that allows students to immerse, reflect, modify, critique and explore through collaborative lessons.

Reviewer #: 59

Background and experience:

The reviewer is a level III instructional leader with a master's degree and 24 years of teaching experience. The reviewer's experiences span from pre-kindergarten through university level in band, choir, orchestra and general music, and also includes the direction of community theater productions. The reviewer has overseen his school district's social emotional school culture initiative and has a level three administrator's license. The reviewer is currently an assistant principal at a public charter school.

Professional summary of material:

Twig Middle School Physical Science provides students with many ways to engage with the NGSS throughout the materials. The lessons within the materials are well constructed and laid out in a way that is easy to follow. All standards that are covered in a particular unit or lesson are listed and cross-referenced at the beginning of lessons as a pre-assessment. All standards are also included in a chart in the assessment library for easy reference. However, not all standards are fully addressed. Some online features in the materials include glossaries, videos, and digital interactives. There are also digital guides included that give strategies for modifying and adapting the instructional materials and assessments. However, it did take some time to locate these materials within the digital resources. Multiple perspectives and opportunities are evident for students to produce work in many forms, including written, digital and project-based learning. All material is also presented in Spanish and there is support embedded in lessons for English learners as well as support for students of diverse populations. Summative and formative assessments are included throughout the text. Online assessments are also available and may be edited to meet the needs of students from diverse populations without compromising the academic rigor of the exams.

Reviewer #: 60

Background and experience:

The reviewer is a level III instructional leader with a master's degree and 18 years of teaching experience, all in middle school science. Reviewer has been a part of district science proficiency scale creation and revision teams. Reviewer has a background in social work and plays an integral part in the district's teacher support programs as a mentor and coach. Reviewer has a level three administrator's license and is currently a science teacher at the middle school level.

Professional summary of material:

The NGSS are embedded throughout the material and are referenced in multiple places for teachers and students. However, not all standards are fully addressed. The digital and print materials are well-organized and present content in an easy to understand manner. Technology connections are present with the use of videos and digital interactives to enhance student learning and understanding of the materials. Various assessments are embedded throughout the materials to allow for student and teacher tracking of learning progression. Online assessments can be modified to meet the needs of diverse learners without changing the rigor of the content. Materials are presented from multiple perspectives and opportunities exist for students to produce work in many ways. All materials are available in Spanish and there are multiple supports throughout for learners at all levels.