2024 Instructional Material Summer Review Institute

Review Team Appraisal of Title

Fourth Grade 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	STEMscopes New Mexico 3D Grade 4 Core Online Bundle (Online, Student Notebook Set per year for 1 Yr)	Publisher	Accelerate Learning Inc.
SE ISBN	9798891928442	TE ISBN	
SW ISBN	9781643049328	Grade Level/Content	Fourth Grade 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
98%

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
86%

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 the opportunity to address preconceptions about the given topic through group discussions. The anchoring phenomenon is discussed to support connections and self-reflections on experiences. The materials provide many images and stories that represent a broad range of demographic groups. The materials also provide many opportunities to role play various scenarios/occupations to help students develop and solve real world problems and make those connections to past experiences. Tasks and topics are authentic, relevant and facilitate conversations.

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 hands-on experiments that foster interests and provide various entry points to activate background knowledge. The hands-on activities and discussions provide opportunities for collaboration and sharing of perspectives. The STEMscopedia student book allows opportunities for making connections and reflecting on past experiences. However, there is no evidence found to show connections to NM cultures, past and present. There is also no evidence of materials that show multiple ethnic descriptions, interpretations or perspectives of events and experiences.

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
98%

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

The materials support a comprehensive understanding of key scientific concepts and practices. Each Bundle and lesson is clearly linked to specific performance expectations, providing a structured approach to aligning with the standards. The materials integrate science and engineering practices throughout. The materials provide engaging hands-on, inquiry-based learning. Lessons regularly include activities that require planning and conducting investigations, analyzing data, and constructing explanations.

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 are aligned to the physical science performance expectations for Energy Transformations. Activities include planning and conducting investigations while providing evidence of the effects of energy and speed, using stored energy, energy transfer and electrical currents, and the transfer of energy in collisions. Materials provide for collaboration to occur while developing an investigation, identifying the problem and developing solutions. For example, inquiry arises from observations that the height of a ramp can affect the distance an object will travel. Project based learning activities are available to develop a plan, build a model, conduct tests, collect data, and revise designs based on evidence made by making observations. Patterns are used to predict the transfer of stored energy into other forms for practical use to determine cause and effect relationships.

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 to physical science performance expectations and related components through exploration of motion of waves, wavelength and amplitude, light reflection, and information technologies. The materials promote the gathering of information and use relevant evidence about the natural designed world and how that leads to being able to construct an argument that waves are used to transmit information in a variety of ways (cell phone, remote, computer). The materials also include cause and effect relationships to explain how light reflecting on an object makes it visible to the eye, which includes the causal evidence of the intensity of wave movement and how they can cause objects to move.

FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES
Materials align to the life 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 to the life science performance expectations and related components by the development of models to explore plant and animal structures and how the structures help them grow, protect themselves, behave a certain way, and reproduce. The materials include activities that explore the phenomena of animal sense receptors (vision, hearing, smell, taste, and touch) and how these receptors send information to an animal's brain to guide their actions to help their survival. The Bundle ends with a culminating project to design a zoo that is organized by animals with the best sense receptors and describe how having those sense receptors help animals survive.

EARTH'S PLACE IN THE UNIVERSE
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 materials align to the earth and space science performance expectations and related components. The materials provide data in tables and graphical displays to identify evidence from patterns in rock formations and fossils in rock layers to support explanations of changes in landscape over time. Information is used to describe different natural processes such as how the patterns of rock formations and fossils can explain changes to earth's surface over time. Included in the materials is an explore activity of how natural hazards (volcanoes, tsunamis or earthquakes) cause changes to earth's surface, but humans can take steps to reduce the impacts. The investigative activities are used to understand that the earth's moving tectonic plates are directly related to the formation of volcanoes and earthquakes.

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 materials align to the earth and space science performance expectations and related components for Earth's Systems by investigating how the slope of land affects the rate of weathering and erosion and the effects of plate tectonic movements. Activities include the exploration and explanation of how water affects the erosion of rocks differently, the effects of waves on a beach, and the agents of weathering and erosion. Other activities explore the connections of tectonic plates and the formation of certain land features and what types of plate movement results in different landforms on earth. The investigate activity looks at the locations of where most volcanoes and earthquakes occur and why they are common in those areas.

EARTH AND HUMAN ACTIVITY
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 materials align to the earth and space science performance expectations and related components through the investigation of different types of energy resources, renewable and non-renewable energy resources, and the effects of different types of energy use. Included are activities that investigate other energy sources besides fossil fuels and how to classify natural resources. Examples include how energy can be used for many things such as fueling our cars and lighting our cities. A project involves the creation of a wind turbine as an alternative energy source.

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 to the engineering design performance expectations and related components by asking students to identify a problem, ask questions, and design and create models to plan and carry out investigations/tests. For example, the creation and development of a booth to attract people is used to demonstrate the transfer of energy from a stored energy source to a light or buzzer. Additional investigations involve building a seismograph to meet the criteria of cost effectiveness and designing a periscope to reveal an object behind a wall when light reflects on it. The materials include the opportunity to analyze and interpret data, use mathematical and computational thinking, construct explanations, engage in argument from evidence including dialogue with peers, and obtain/evaluate/communicate information.

CCSS for ELA and Math Grade 4 NGSS
Materials align to the ELA and math standards identified in the fourth grade NGSS.
Statements of appraisal and supporting evidence:

The materials align to the identified ELA and math standards in the fourth grade NGSS by providing opportunities for math connections and reading texts within the Elaborate tab in every lesson. These include differentiated math and reading activities to support varied levels of learning abilities. Activities include completing measurements including fractions, basic calculations using base ten operations, modeling with mathematics, and using tools appropriately. There is evidence of reasoning abstractly and quantitatively, measuring liquids and volumes, asking and answering questions, stating and supporting opinions, using information gained from illustrations, and comparing and contrasting, and writing explanatory texts. Short research projects to build knowledge about a topic are also evident.

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
100%

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 instructional materials incorporate a phenomena- and problem-based approach, integrating the three dimensions of the Next Generation Science Standards (NGSS): disciplinary core ideas, crosscutting concepts, and science and engineering practices. Instructional materials are centered around engaging, real-world phenomena that captivate interest and provide a meaningful context for learning. The materials present real-world problems that require the application of scientific principles to develop solutions.

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 include assessments that allow for the effective measurement of progress in disciplinary core ideas, science and engineering practices, and crosscutting concepts. Each assessment explicitly links questions and tasks to specific NGSS performance expectations. The materials also include activities to conduct investigations to test hypotheses. The materials provide a variety of assessment types, including formative assessments, summative assessments, performance tasks, and self-assessments, as well as benchmark assessments to capture a comprehensive picture of learning.

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 and utilize materials. A sample lesson plan is included in each topic within a bundle and the materials follow the same format throughout the bundles. The materials have an anchoring phenomena event, a scope overview, a prior knowledge and progression component, and a pacing guide. Each lesson is divided into sections called Engage, Explore, Explain, Elaborate, and Evaluate (tabs) for varying levels of activities. Lessons also include an Intervention and an Acceleration tab for additional activities and assessments. The materials are available in both digital and print and Spanish versions are available.

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

The instructional materials are crafted to foster a student-centered learning environment, promoting engagement and participation in science content. The materials are designed for the purpose of engagement through hands-on activities, experiments, and collaborative projects. The materials emphasize collaborative learning, sharing ideas, and learning from one another. Each unit begins with a guiding question or phenomenon that sparks curiosity and drives inquiry. For instance, a unit on energy transformation might start with the question, "How can energy be transferred from one object to another?" This allows for the design and investigative inquiry to explore this question, engaging in the scientific process and developing critical thinking skills.

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

Materials allow students to explore science concepts and three dimensions through various investigations and project based learning like designing a booth that has many examples of electrical energy being transferred to other forms of energy. Students are able to make personal connections/reflections between the investigative phenomena and their own lives. Assessments are available in both print and digital formats. A variey of questioning options are given (multiple choice, open-ended, CER type). An option to edit or shorten assessments is available as well. The assessments allow for multiple opportunities for students to reflect and demonstrate their learning. Each of the lessons within the materials include an Acceleration section where various extension activities are found to allow for greater depth of learning. Some of the activities found include project based learning, books on topic, and art connections.

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
95%

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 demonstrate coherence and alignment with the New Mexico content standards by providing a comprehensive education promoting college and career readiness. Materials address the full content in the standards. At the beginning of every "Bundle" under the "Scopes" tab, the standards alignment can be found that illustrates the performance expectation (PE) as well as the three-dimensional focus that includes the SEPs, DCIs and CCCs. The materials contain CCC and SEP scoring rubrics for each "Scope" to help guide teachers in determining mastery of the standards. In addition, each lesson has multiple embedded activities/tasks that could be used as formative assessments. The materials provide grade level appropriate topics/themes that are engaging. They also incorporate many opportunities to work independently as well as collaboratively to share learning.

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

The materials include learning progressions that are clear and located at the beginning of each "Bundle." Prior knowledge and progressions are located along with the "Scope" overview that includes a timeline/pacing guide for each lesson and "Bundle." In the teacher's guide for each "Bundle", there is a three-dimensional learning page that outlines all the PEs, DCIs, SEPs, and CCCs. Content objectives are aligned with the standards for each lesson. The instructional materials include measurable language objectives that focus on one or more of the four domains of listening, speaking, reading or writing that correspond to the content objectives. The STEMscopedia is used as a companion vocabulary resource to promote reflection on previously learned words, and to visit new content-specific vocabulary. The online materials also have picture vocabulary flashcards that can be printed to play vocabulary games to build understanding or used for a word wall. T here are many embedded graphic organizers as well as cooperative learning activities. The instructional materials incorporate features that make it easy to navigate. The instructional materials include print files that can be accessed and modified. The "Teacher Toolbox" contains resources, interventions, interactives and many vocabulary resources and lined literacy reading tools. The materials provide opportunities for practice, review, share, present, read and write about science topics.

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 teachers with a roadmap for lesson planning with suggestions for pacing. Teacher prompts are included to guide discussions. Also included in the teacher's guide are lists of the needed materials with consumables and reusables. The planning guide also has procedures and talking points that include suggestions on how to present and discuss the anchoring phenomena. The materials include suggestions and activities to meet the needs of various levels of learners. Instructional strategies are included for facilitating discussions, small group/independent work, re-teaching opportunities and extension lessons for accelerated learning. The materials are accessible and available both in print and digital formats. The materials reference the NGSS three-dimensional approach to help teachers understand the design and the need to build a cohesive understanding of STEM concepts. Each "Bundle" incorporates a snapshot that shows the larger picture of the lesson activities and content is laid out with the performance expectations noted and which "Scope" is introduced to meet that performance expectation. Integration of digital learning is embedded throughout. Most of these materials can be printed and are also available in Spanish.

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 include a variety of assessments to measure progress. There are opportunities for demonstrating understanding through oral presentations, graphic organizers, open-ended responses, as well as multiple choice assessments. The instructional materials provide oral and written performance-based tasks, quizzes and other formative and summative assessments as well as benchmark assessments. There are scoring rubrics found under the "Home" tab for the CCCs and SEPs that give guidance on how to analyze and interpret responses and final products for proficiency. There are answer keys for all assessment types and suggested sample responses found in the digital component and in the teacher's guide. There are guided-practice activities for remediation, with guiding questions to help build understanding of the concept as well as extension lessons to meet the needs of accelerated learning styles. The materials provide some alternatives for Spanish speakers, though they are not found for other languages. There are additional supports suggested for those who require leveled reading passages or math scaffolds. The assessments are available to be assigned digitally or to be printed.

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 available can be edited to meet the needs of different learning populations. The "Elaborate" tab includes reading passages with three different lexile levels to accommodate different reading abilities. The digital and printed materials offer both intervention and acceleration activities to re-teach and further learning. Sentence stems are embedded throughout the materials to assist with writing. There are also suggested books on the given topic and art through science activities to promote further learning. The instructional materials provide some linguistic scaffolds to support ELs and other special populations, such as sentence stems and numerous graphic organizers. During "Accessing Prior Knowledge," the opportunity to share understanding and make connections is present. The teacher also has the ability to address pre/misconceptions about a topic at the beginning of each lesson. Materials offer a "Teacher Toolbox" with parent resources that are editable and that can be downloaded in both English and Spanish. There is also a "Connecting with your Child" component that encourages scientific dialogue which offers a series of questions that can be asked at home to further reinforce science concepts learned at school. The materials provide opportunities for all learners to think critically, solve complex problems and foster inquiry. Project-based learning and class projects are some of the methods used to accomplish this.

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 the opportunity to address preconceptions about the given topic through group discussions. The anchoring phenomenon is discussed to support connections and self-reflections on experiences. The materials provide many images and stories that represent a broad range of demographic groups. The materials also provide many opportunities to role play various scenarios/occupations to help students develop and solve real world problems and make those connections to past experiences. Tasks and topics are authentic, relevant and facilitate conversations.

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 hands-on experiments that foster interests and provide various entry points to activate background knowledge. The hands-on activities and discussions provide opportunities for collaboration and sharing of perspectives. The STEMscopedia student book allows opportunities for making connections and reflecting on past experiences. However, there is no evidence found to show connections to NM cultures, past and present. There is also no evidence of materials that show multiple ethnic descriptions, interpretations or perspectives of events and experiences.

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 #: 4

Background and experience:

I am currently a Level III educator teaching 5th grade. I hold a Master's Degree in Curriculum and Instruction and have 16 years of experience in elementary education, including three years focused exclusively on teaching science. I facilitate an after school science club. This is my second time working with the NMPED as a reviewer for instructional materials adoption.

Professional summary of material:

The materials provided by this publisher are engaging for students and easy to follow in both the printed and digital formats. They involve students in many inquiry lessons in order to teach the content of each standard. Students are encouraged to think critically and reason abstractly using evidence from activities to support their ideas and conclusions and claims. There are project-based learning opportunities for students, where they can take their learning further. Materials do offer interventions and areas where teachers can differentiate for students. The Cultural and Linguistic lens could have been stronger had it included more support for diversity of language and background representation.

Reviewer #: 5

Background and experience:

I ama level III teacher with endorsements in TESOL and social studies. I have been teaching for 34 years in elementary education and instructing students in all subject areas. I am in charge of the science fair at my school and help facilitate an after school science club. I have my Master's Degree in Special Education and am a Nationally Board Certified Teacher. This is my fourth time working as a reviewer of record for the NMPED. I have reviewed ELA, math, and social studies curricula.

Professional summary of material:

The instructional materials are very engaging and covered all the NGSS standards. The materials are easy to understand and teacher friendly. They are simple to navigate, both the online portion and the printed teacher edition. The activities for the students are engaging and fun to do. There are different levels of questioning and scaffolding for students below and above grade level. There are little or no materials for or examples of culturally and diverse learners. Assessments are both open-ended and multiple choice, which students are able to access online or in pencil/paper format.

Reviewer #: 6

Background and experience:

I am a level III-A teacher with a K-8 license with endorsements in ELA, TESOL, and reading. I also hold a level III-B PK-12 administrative license. I have been teaching K-5th grades for the past 24 years. Currently, I am an English Language Development teacher/coordinator. This is my third time working with the NMPED as a reviewer for the instructional materials adoption. I also served in the past as a dossier reviewer for teacher licensure advancement as well as a reviewer for the Governor's Reading Initiative.

Professional summary of material:

The instructional materials are aligned with the NGSS and NM content standards. They provide students with activities and learning to help them develop a comprehensive understanding of scientific concepts and project-based learning for their grade level. Overall, the pacing guide and the format/layout are teacher friendly and include opportunities for teachers to differentiate for reading and writing. There are many graphic organizers embedded throughout each lesson, which lends itself well to helping students organize their ideas. As an ELD teacher, my only concern is that the materials are only translated into Spanish and no other languages are represented.; this is not reflective of NM. Also, the CLR component is lacking in the cultural relevance for some cultures and could provide more sensitivity as well as guiding teachers in understanding indigenous cultures and their corresponding belief systems.