2024 Instructional Material Summer Review Institute

Review Team Appraisal of Title

First 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	1-Year Digital License only—Grade 1 (one per student) Student Digital License (Modules 1–4)	Publisher	Twig Education Inc.
SE ISBN	9781789162059	TE ISBN	9798889500520
SW ISBN	9798889500582	Grade Level/Content	First 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
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 are representative of a diverse group of cultural and linguistic perspectives. They include pictures of children and adults from different backgrounds throughout. 'Cultural Connections' sidebars and 'Meet the Scientist' sections give students the opportunities to read about and discuss men and women in science from New Mexico and around the globe. The materials provide opportunities for students to validate and affirm their own identities as they connect to their own cultures through reflection and discussion. Throughout the lessons, students are encouraged to make cross-curricular and cultural connections. The materials provide opportunities for students to discuss and connect with their own personal lives and their communities through exploration, reflection, and discourse.

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 instructional materials highlight diversity through images, stories, information, and perspectives that represent a broad range of demographic groups. Students are provided opportunities to make real-life, cultural and linguistic connections to science-themed topics as well as present diverse perspectives. Each module includes a 'Meet a Scientist' section on a NM scientist from diverse cultural and ethnic backgrounds, including people from Native American, Middle Eastern, and Caucasian backgrounds.

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:

Overall, the materials align with NGSS for first grade. The materials provide opportunities for students to practice analyzing information, conducting investigations and experiments, and reflecting on their learning. The materials allow students to connect investigations and science concepts to real-life experiences. The NM-specific Stem Ready! standard for first grade is listed and integrated in these materials.

WAVES AND THEIR APPLICATION 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 performance expectations and related components for this topic. They guide students in making models, exploring hand-on experiences, and learning from investigations. The materials provide opportunities for students to investigate light, sound, and vibrations. Module 2 focuses on sounds and vibrations and includes an engineering project in which students design, build, and test a communication device. Module 3 focuses on light and shadows and includes investigations of materials' opacity, translucence, transparency, and reflection.

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 with the performance expectations and related components for this science topic by providing opportunities for modeling, investigating, collaborating, and designing. There are opportunities for students to investigate structures and processes of plants and animals throughout modules 1 and 2. Module 1 requires students to design a seed that will travel in the wind based off what they have learned about a seed's structure and stability in relation to its function. The materials also provide the opportunity for students to choose a human problem to solve using the knowledge they gained from learning about plant structures and processes. For example, students are guided in making connections between barbed-wire fencing and thorns on a stem. Module 2 includes animal investigations that show students how animals and their body parts are linked to their ability to live and grow.

HEREDITY: INHERITANCE AND VARIATION OF TRAITS
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 with the performance expectations and related components for this topic. The materials task students with investigating similarities and differences between adult and young plants and animals. In module 1, students have the opportunity to study plants through pictures and real seedlings growing in their classroom. They use these to make models and comparisons. Module 2 investigates animals; students study how adult and young animals are alike and different. The materials provide opportunities for students to record observations from videos, read alouds, and pictures. Students use these observations to make models, such as a Venn Diagram, comparing and contrasting adult and young animals.

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 with the performance expectations and related components for this topic by providing opportunities for students to make models, explore hands-on experiences, and learn from investigations. The materials require students to track and record patterns of the sun and moon rising and falling and reflect on what they see during those times. Students are tasked with using this information to create a model. The materials also provide opportunities for students to explore other patterns in the natural universe and discuss how that connects to patterns in the night sky. The materials encourage students to independently read and participate in read-alouds that help support the performance expectations for Earth's Place in the Universe.

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 performance expectations and related components for Engineering Design by guiding students in defining a simple problem to solve through developing or improving a tool or device. The materials provide opportunities for students to design, build, and test a physical model of the tool or device. Students are then tasked with observing and recording data to share with peers or to redesign and improve their devices. In module 1, students have the opportunity to participate in two engineering projects, creating a personal seed design and a device inspired by plants. Students are tasked with creating a communication device as the culminating activity for module 2.

CCSS for ELA and Math Grade 1 NGSS

Materials align to the ELA and math standards identified in the first grade NGSS.

Statements of appraisal and supporting evidence:

The materials align with the CCSS for ELA and math as identified in the NGSS for first grade. The materials provide opportunities for students to practice designing, building, modeling, and annotating. ELA standards are integrated throughout all four modules. The materials provide opportunities for students to ask and answer questions about key details, participate in research and writing projects, and engage in collaborative conversations. Math standards are also integrated throughout all four modules. The materials incorporate addition, subtraction, place value, measurement, and reasoning in handouts and annotated teacher edition sidebars. 3D Learning Objectives are identified within the teacher edition for each lesson and math objectives are integrated within applicable lessons.

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
99%

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 are split into four modules that are each grounded with an anchor phenomenon that is present throughout each lesson. Students have the opportunity to interact with the three dimensions as they reflect, answer questions, design and redesign models, and set goals. The materials guide students in discussion. Students then record their observations, ideas, and reflections in their workbooks. Each module includes a performance task in which students have the opportunity to solve real-life problems using complex and creative thinking. For example, in module 1, students are tasked with creating a device inspired by plant structure in connection with the anchor phenomenon, "How are all plants alike and how are they different?".

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.

Both formative and summative assessments are embedded throughout the materials. Each lesson has a series of investigations designed to help students make sense of the phenomena, design solutions to problems, and master the content. Each module has a variety of different assessment types, including digital, paper/pencil, performance tasks, and discussions. Progress trackers and rubrics are included, along with strategies to support students who may have misconceptions or need enrichment. The "Assessment Center" provides accommodations including text-to-speech, larger font, and page masking.

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

Materials include opportunities for teachers to effectively plan and utilize materials through guided support in the teacher editions that are available both digitally and in print. The materials provide online assignments, progress tracking/monitoring tools, support for asynchronous teaching, modeling, differentiation, reteaching, small groups, and pacing. Teachers are offered "Full Course" and "Fast Track" options for each lesson in each module. Lessons include overviews that provide teachers with digital and print resources, necessary preparation and background information, and time frames. The teacher editions also offer next steps, rubrics, Spanish and English resources, family outreach letters, and safety guidance for investigations. The materials include charts, handouts, guided questions, and annotated sidebars to support teachers in planning and implementation. Digital teaching guides include differentiation strategies and classroom management/routine suggestions.

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

The instructional materials are scaffolded and designed to generate student participation. Each lesson is created with a multi-sensory approach that provides students with diverse learning styles the opportunity to be successful in a variety of ways. For example, the materials provide opportunities for student discourse in whole group, small group, and partner turn and talks. Students also have the opportunity to engage in hands-on investigations, participate in creative art explorations, access digital resources, and complete independent workbook tasks. The materials start with the "Spark" section in which students activate their prior knowledge. Lessons are presented in a predictable manner to support student engagement with the materials.

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

The instructional materials are designed for all learners. They include instructional options for students who have special needs or are English learners. The materials contain options to enrich and extend learning for advanced learners. 'Cultural Connections' sidebars present diverse perspectives and provide opportunities for students to make cultural and linguistic connections to science-themed topics. The instructional materials provide images, stories, and information representing a broad range of demographic groups where all people represented in the material are seen as scientists.

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 consistent with the New Mexico Science content standards at the first grade level. Grade level scope and sequences show all standards addressed are available and include module overviews that break down the standards addressed per lesson. Assessment libraries are available for the entire grade level scope and sequence, with digital and non-digital assessments. Each lesson comes with a formative assessment option. Materials are appropriate for a first grade level, including leveled readers, read alouds, and independent/group workbook tasks. All teacher guided lessons and discussion prompts are grade level appropriate.

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 include teacher resources to support effective lesson structure and pacing. Scope and sequences are provided for all four modules, along with lesson overviews that provide suggested pacing for each component of the lesson. Each lesson provides detailed learning objectives, content standards, and ELA and Math CCSS connections. The lesson overview explains how assessments relate to the lesson and connect to standards being assessed. Students are given support in making meaning of the content through leveled readers and workbook reflections. Teachers also receive support in providing clarity for student misconceptions. The materials have a consistent layout that give students opportunities to review and practice through direct instruction, hands-on engagement, digital resources, group activities, and discussions.

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 for support in planning, learning, and understanding the New Mexico content standards for grade 1. The materials provide pacing guides, scope and sequences, time frames for each section and lesson, and necessary preparation and background information. Teacher editions, both online and print, have sidebars and "Differentiated Instruction: Highlights" sections to guide teachers through student-facing materials. The instructional materials provide teachers with Spanish and English versions of videos, read alouds, visuals, presentations, and models. The first grade NM-specific STEM Ready! standard is integrated throughout each "Meet a Scientist" section in the online teacher edition in which teachers and students learn about various scientists from New Mexico.

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 offer teacher assessment resources and tools to collect ongoing data about student progress related to the standards in both digital and print format. The "Assessment Center" provides tools for student accommodation including page masking, larger font, different formats, and options for teachers to edit in both English and Spanish. Teachers are provided with rubrics, trackers, alternative assessments, remediation and advancement opportunities, and differentiation strategies. English learners and culturally and linguistically diverse learners have options for oral assessment. The variety of resources and tools for assessments allow each student to show content proficiency in a variety of ways.

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 and supports to explore key concepts. The Driving Question (DQ) of each module includes a "Differentiated Instruction-Highlights" section in both the digital and printed teacher editions. Strategies and scaffolds are included as sidebars throughout lessons for English learners and special needs students, as well as in 'Cultural Connections' to share diverse perspectives and challenge activities for advanced learners. Progress trackers and rubrics are provided to assist teachers in monitoring progress. The materials offer scaffolds and reteaching strategies to address the misconceptions of all learners. Leveled Readers are available in four levels (on-level, below-level, advanced, and English learners) to meet the needs of all reading abilities.

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 are representative of a diverse group of cultural and linguistic perspectives. They include pictures of children and adults from different backgrounds throughout. 'Cultural Connections' sidebars and 'Meet the Scientist' sections give students the opportunities to read about and discuss men and women in science from New Mexico and around the globe. The materials provide opportunities for students to validate and affirm their own identities as they connect to their own cultures through reflection and discussion. Throughout the lessons, students are encouraged to make cross-curricular and cultural connections. The materials provide opportunities for students to discuss and connect with their own personal lives and their communities through exploration, reflection, and discourse.

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 instructional materials highlight diversity through images, stories, information, and perspectives that represent a broad range of demographic groups. Students are provided opportunities to make real-life, cultural and linguistic connections to science-themed topics as well as present diverse perspectives. Each module includes a 'Meet a Scientist' section on a NM scientist from diverse cultural and ethnic backgrounds, including people from Native American, Middle Eastern, and Caucasian backgrounds.

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 #: 28

Background and experience:

I am a current charter school principal in my 13th year in education. I taught special education for 10 years and served as the special education coordinator, testing coordinator, and equity council coordinator. I hold bachelor's degrees in both early childhood education and special education as well as a master's degree in educational leadership. I have done extensive training in math and science instruction, as well as certification in teaching students with dyslexia.

Professional summary of material:

The Twig first grade instructional materials are a standards-aligned set of materials that link to math and language objectives, project based learning, and multiple forms of assessments. They begin with teacher materials that offer pacing guides, scope and sequence, and explicit lessons that teachers can follow. Student materials are offered in the form of paper and digital workbooks as well as other digital resources, such as video, audio, and interactive slideshows, and printable handouts. The material has many opportunities for differentiation and advancing students, depending on where they are and what needs they may have. The three-dimensional approach is apparent as students are exposed to multi-sensory tasks throughout every lesson and module. There are resources to support teachers in meeting the needs of special needs, advanced, or culturally diverse students, as well as English learners. Assessments are provided in multiple ways, through discussion, observation, progress trackers and rubrics, and performance based tasks. Students engage in real life learning and discuss community issues and learning that relate to their own lives. Diverse cultures and languages are considered throughout the material, providing students opportunities to connect with their own lives and cultures as they work towards mastery of content. Students are also introduced to professionals in the field that offer diverse cultural perspectives and backgrounds. Student discourse is at a high level of rigor, but appropriate to grade level. Teachers and students are provided opportunities for feedback and reflection and projects require high levels of complex and creative thinking.

Reviewer #: 29

Background and experience:

I hold an MS in Educational Leadership and a BA in English with minors in French and journalism, and an alternative licensure certification. I have a Level III administrative K-12 license and a Level III teaching K-8 license with endorsements in modern and classical languages, gifted education, and reading. I am currently an elementary instructional coach, and I have taught kindergarten, second grade,and gifted education K-5 over the past 14 years.

Professional summary of material:

I recommend the adoption of the Twig first grade science instructional materials for use in New Mexico schools. NGSS, CCSS ELA, and CCSS math standards are adequately addressed in all modules. The printed and digital materials are well organized and easy to utilize, showing a progression across the standards, modules, and driving questions. The scope and sequence and pacing guides across and through modules are easy to utilize for planning and teaching, following a consistent layout and routine. The student materials are engaging with bright colors, diverse cultures and people represented, and adequate space for students to record observations, learning, and reflections that relate to real-life experiences. The instructional material offers differentiation ideas and resources for advanced, on grade level, special needs, and English learners. The first grade NM-specific STEM Ready! standards are met by introducing students to four current New Mexico scientists. The activities and 'Cultural Connections' sidebar allows students to investigate and discuss issues in relation to individual cultures and New Mexico experiences.

Reviewer #: 30

Background and experience:

I just completed my fifth year teaching general education at the elementary school I attended as a child. I have taught kindergarten, first, and second grade students since 2019 at a rural school. I was also a school site lead of our district’s science team. I hold a Bachelor of Science in biology with a minor in psychology, graduating magna cum laude. I obtained my level II teaching license in 2023. I have experience with both learning and teaching science content at various ages and education levels.

Professional summary of material:

The instructional materials and additional resources of Twig Science Grade 1 provide efficient and effective instruction of the Next Generation Science Standards (NGSS) and include some CCSS ELA and some CCSS math. Twig Science does this in a manner that educates all students. The materials are equipped with noted teacher guidance to ensure inclusion of students who are culturally diverse and linguistic learners, English learners, and students with IEPs by providing resources for modifications and accommodations. The materials list English language arts standards and math standards when applicable throughout each module and lesson. The pacing guides, progressions, modules, lessons, and assessments are easy to follow and directly related to the content and standards listed. Formative and summative assessments come in many modalities. Assessments, both online and in print, include “What to Look For” student misconceptions, accommodations, modifications, and next steps for the teacher to incorporate. There are also rubrics for summative assessments as well as trackers for progress monitoring for many lessons. Both online and print Teacher Editions (TE) are interactive, maintain a consistent layout, and are navigator friendly. The online TE has nearly all resources available in Spanish and several opportunities for take-home family activities and module overviews related to the content students are learning in class and family outreach letters. The student Twig Books (TB) depict a variety of cultures, “disabilities”, impairments, and ages without negative connotations associated. TBs are interactive, engaging, and directly related to the standards and anchor phenomena presented in the TE guide in both online and print versions. The materials effectively progress lesson by lesson and module by module to ensure a comprehensive understanding of NGSS. There are many opportunities for both teachers and students to critically and creatively think, collaborate, discuss, reflect, and review.