2024 Instructional Material Summer Review Institute

Review Team Appraisal of Title

Kindergarten 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 K (one per student) Student Digital License (Modules 1–4)	Publisher	Twig Education Inc.
SE ISBN	9781789161755	TE ISBN	9798889500315
SW ISBN	9798889500575	Grade Level/Content	Kindergarten 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
	92%

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 85% or above on the CLR portion of the review are recognized as culturally and linguistically relevant.*

		Average Score
CLR Recognized	☑	92%

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

All lessons include Cultural Connections sidebars for teachers and students to prepare for and share personal cultural and linguistic experiences. Images, stories and information represent a broad range of demographic groups that do not make generalizations or reinforce stereotypes. All students and teachers are represented as scientists. Images within the student books depict multiple cultures, ages, and differences.

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:

Lessons include many discussions in which students are able to look at different ways of doing things, ask questions of others, and share their own perspectives. Students engage in reflection about their own lives and societies, but they are not guided to look specifically at cultures past and present in New Mexico. There is encouragement for students to reflect and share on their own personal cultures; however, there is no evidence of differing cultural perspectives within the content being addressed.

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
92%

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

The Twig Education Grade K Science materials align with the Kindergarten NGSS overall as seen in the opportunities for analyzing information, conducting investigations and experiments, and revising or reflecting on learning. The grade level appropriate activities allow for all students to make connections to real-life experiences.

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 motion and stability performance expectations for kindergarten science by having students carry out investigations with peers through hands-on activities of the concepts push/pull, speed, and direction. The materials allow students to act as scientists by predicting outcomes, testing theories through experiments, observing actions, gathering evidence, analyzing data, and revising thinking based on cause and effect relationships.

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 energy performance expectations by giving students a variety of activities to demonstrate understanding of the effect of sunlight on the earth's surface. The utilization of tools and materials to design and build a structure allows students to understand cause/effect relationships and explore patterns related to sunlight's effects.

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 structures and processes performance expectations through the study and observation of phenomena on plants and animals. Students are asked to describe patterns based on their observations. The consistent use of techniques such as recording observations and using cause/effect tables in student materials enhance opportunities for understanding through active participation and analysis of evidence.

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 with the performance expectations in this focus area through active observations, analysis of data and descriptions of patterns related to weather conditions. The materials explore weather conditions in a variety of locations and climates, including severe weather. The materials engage students in developing and demonstrating their understanding of the effects living things have on their environment. They also engage students in creative and collaborative development of solutions to local environmental problems. For example, students are tasked with creating a plan to reduce, reuse, and recycle materials around their home and school. The materials emphasize how students can protect and preserve the environment around them by keeping it clean, safe, and reducing behaviors that may cause harm.

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 with the earth and human activity performance expectations through the use of models created by the teacher and/or students when describing and recording observations of how plants, animals, and humans affect their environments. Students are encouraged to ask and answer questions regarding the phenomena addressed, with a focus on how humans affect or are affected by their environment. Cause and effect relationships through a scientific lens are used for developing understanding of this expectation. A culminating activity is utilized for students to creatively solve a problem in their local environment and share it with others.

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 this performance expectation in multiple modules and activities, including constructing a marble run after studying motion. Module 2 ends with a culminating activity of building a marble run, utilizing all components of the design process by planning, constructing, testing and revising their design. Both the teacher edition and student edition provide supports for this student engineering activity by breaking steps down over five lessons. First, students are asked to investigate the possible components of the model run. Students then experiment with teacher created marble runs. Finally, the task requires students to use the data from observations to create and test their own runs. Furthermore, engineering design is utilized in module 3 to create models to solve the the real-world problem of protection from the sun.

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

The materials are aligned to the NGSS-identified CCSS ELA and CCSS math. In addition to these, specific language standards are identified for each lesson. There is alignment with ELA standards when students are asked to analyze cause and effect relationships through a science lens; record scientific observations and information through drawing and/or writing; and acquire and use scientific vocabulary. Requiring students to count and record numerical data and explore geometric concepts during a scientific investigation or observation shows alignment to math standards.

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 centered around modules that use high-quality phenomena and real-life problems. Each module begins with an anchoring phenomena and goes through a three dimensional approach that includes direct instruction and hands-on interactive activities and investigations to solve real-life problems. Each lesson has 3-D learning objectives associated with the driving question and standards being addressed. The kindergarten material addresses NGSS, CCSS ELA, and CCSS math.

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 materials provide a variety of assessments that include interim, formative, and summative assessments. There are rubrics, look fors, and misconception charts addressing the misconceptions in past or upcoming lessons. The teacher edition provides progress trackers to monitor student proficiency along with guidance for next steps for instruction. Online summative assessments are computer based and save the students' results in an online dashboard for teacher use.

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

The teacher edition includes a pacing guide and scope and sequence to follow, including fast track and asynchronous options. Each lesson provides guidelines for suggested time frames, preparation requirements, available digital resources, addressing standards and objectives, and aligning assessments to the lessons. Each lesson follows a similar structure that becomes predictable for teachers and students.

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

The flow of lessons is coherent, meaningful, and predictable. Each module and lesson has a consistent layout for both teachers and students. Students are encouraged to pull from their background and prior knowledge to connect learning to relevant phenomena and driving questions. Teacher guidance is given to ask students what they know and what they can share about the content. Teachers and students have opportunities to be actively engaged in curiosity and participation with hands-on building, investigating in each lesson, and observing phenomena through each module. The materials incorporate real-life problems centered around students' communities. In module 4, students are tasked with using what they have learned to create a plan to protect their local environment.

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

The materials include multi-sensory strategies to support all learners to connect with and learn the content. Teachers are provided with guidance on differentiation to meet the needs of all learners, including special needs students, English learners, and students who are advanced in the content. There are sidebars in both the online and print teacher editions that give teachers remediation and extension activities for different level learners. Each lesson provides teachers and students with questions, models, vocabulary activities, and interactive technological tools. Assessments include alternative questioning, advanced questioning, open ended writing/drawing, and oral assessment options. These allow all students multiple opportunities to show proficiency.

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
96%

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 materials are consistent in addressing all kindergarten content standards and provide grade level engagement practices that are developmentally appropriate. Lessons are linked by driving questions within modules that connect to students' prior background and learned knowledge. Each lesson provides objectives and assessments for student mastery of the standards by giving opportunities for differentiation.

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

The teacher edition presents a scope and sequence and a pacing guide along with module overviews that show a lesson progression within modules. Each lesson presents science and language standards and objectives. These standards are measurable and tied to instruction and assessment. There are vocabulary acquisition resources and scaffolding for each lesson. The materials maintain a consistent layout within both teacher materials and student materials for each lesson. There is guidance to support teachers to provide the structure of each lesson, from the introduction through the investigation, self-reflection, and assessment.

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 edition includes a full-curriculum map, then breaks it down within each module by Driving Questions and lessons. These include a time breakdown for the components within each lesson. Numerous digital resources and guides, including the Guide to Scientific Discourse, Language and Classroom Strategies. Digital resources are included within each lesson in English and Spanish, including but not limited to videos, songs, and virtual read alouds.

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:

There are a variety of assessment resources and types to fit the needs of diverse groups of learners. There are formative and summative assessments along with performance tasks, providing opportunities for students to demonstrate their proficiency by completing a task. Alternative and/or accessible assessments are available in both the printed and digital teacher edition. Teachers are provided with rubrics and scoring templates, look-fors, and an online dashboard with assessment results.

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

Lessons in all modules include supports for English learners, students with special needs, and challenges and cultural connections. Teachers are provided annotations and guidance to meet the needs of diverse learners to support learning. There are sections labeled "Differentiated Instruction: Highlights" at the beginning of each lesson in the teacher edition, print version, to guide the teacher and prepare them for potential support students may need. Online teacher editions provide editable module overviews and family letters in English and Spanish as well as take home activities related to classroom content.

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

All lessons include Cultural Connections sidebars for teachers and students to prepare for and share personal cultural and linguistic experiences. Images, stories and information represent a broad range of demographic groups that do not make generalizations or reinforce stereotypes. All students and teachers are represented as scientists. Images within the student books depict multiple cultures, ages, and differences.

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:

Lessons include many discussions in which students are able to look at different ways of doing things, ask questions of others, and share their own perspectives. Students engage in reflection about their own lives and societies, but they are not guided to look specifically at cultures past and present in New Mexico. There is encouragement for students to reflect and share on their own personal cultures; however, there is no evidence of differing cultural perspectives within the content being addressed.

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 kindergarten material links to NGSS performance expectations and to math and language objectives, project-based learning, and multiple forms of assessment. It begins with the teacher materials that are clear and offer pacing guides, scope and sequence, and explicit lessons that teachers can follow step-by-step. 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. There are also printable handouts. The material has many opportunities for differentiation and advancing students depending on where they are and what needs they may have. There are sidebars to support teachers in meeting the needs of special needs students, English learners, and support for challenge as well as cultural connections. Assessments are provided in multiple ways, including digitally, 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 toward mastery of content. Student discourse is at a high level of rigor, but appropriate to grade level.

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 kindergarten science material 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 modules are easy to utilize for planning and teaching. The student materials are engaging with bright colors, diverse cultures and people represented, and adequate space for students to record observations and learning that relate to real-life experiences. The instructional materials offer differentiation ideas and resources for advanced, on grade level, special needs, and English learners. Activities and cultural connection sidebars allow 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 the Twig Science kindergarten material provide efficient and effective instruction of the Next Generation Science Standards (NGSS). Twig Science does this in a manner that educates all students. The material is equipped with noted teacher guidance to ensure inclusion of students who are culturally diverse and linguistic learners, English Learners, and students with IEPs with modifications and accommodations. The Twig Science kindergarten material lists 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. Formative and summative assessments come in many modalities. Assessments come with "What to Look For", accommodations, modifications, and next steps for the teacher to incorporate. There are also rubrics and trackers available for many assessments and lessons. Both the online and physical teacher editions (TE) are interactive, simple to follow, and 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. The student Twig Books (TB) depict a variety of races, "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. The material effectively progresses lesson by lesson and module by module to ensure a comprehensive understanding of the NGSS. There are many opportunities for both teachers and students to critically and creatively think, collaborate, discuss, reflect, and review.