2024 Instructional Material Summer Review Institute

Review Team Appraisal of Title

Second 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 2 (one per student) Student Digital License (Modules 1–4)	Publisher	Twig Education Inc.
SE ISBN	9781789162356	TE ISBN	9798889500537
SW ISBN	9798889500599	Grade Level/Content	Second 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
97%

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. Pictures of children and adults from different backgrounds are included to support students seeing themselves in the materials. In the "Cultural Connections" sidebars, students validate and affirm their own identities as they connect to others' cultures through reflection and discussion. Throughout the lessons, students are encouraged to continue to make cross-curricular and cultural connections. Supported by prompts throughout the materials, students discuss and connect with their own personal lives and their communities through exploration, reflection, discourse, and hands-on projects.

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, where all people represented in the material are seen as scientists. "Cultural Connections" sidebars provide opportunities for students to make real-life cultural and linguistic connections to science-themed topics. Each lesson provides teacher guidance to support students in sharing diverse, asset-based perspectives. "Cultural Connections" sidebars also highlight the relationship of location descriptions with Spanish language names and Spanish word cognates for scientific terms and vocabulary.

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
97%

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

Overall, the materials align with NGSS for second grade. The materials provide opportunities for students to practice analyzing information, conduct investigations and experiments, and reflect on their learning. Students participate in discourse in whole group, small group, and partner settings. The materials allow students to connect investigations and science concepts to real-life experiences using creative and complex thinking.

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 performance expectations and related components for Matter and Its Interactions. Students are guided in making models, exploring hands-on experiences, and learning from investigations. The materials provide opportunities for students to investigate the structure and function of different materials, including how their structure can change into other states of matter by heating and cooling, such as melting crayons into liquid wax and then remodeling them as the wax cools. Module 2 concludes with an engineering project in which students design, build, and test towers and bridges utilizing different types of materials and different structural designs to hold the maximum amount of weight possible.

ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS
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. In module 4, students collaboratively investigate plant growth regarding light and water by testing plant growth in only sun, only water, and both light and water. The students use the data to determine if plants do in fact depend on both light and water to grow. Students are directed to mimic the function of an animal pollinating plants by developing models to depict effective pollination between animals and plants. Module 4 also requires students to design an animal pollinator and flower to be pollinated based on their knowledge of structure and stability in relation to the function of the pollinators and flowers.

BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY
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. In Module 4, "A Garden for Life", students explore different habitats on our planet and consider similarities and differences in those habitats, as well as defining traits of those areas. The materials familiarize students with the types of plants and animals that live in each habitat and what diversity in wildlife looks like. The unit's driving question is: "How do living things in an environment depend on each other and what do they need to grow?". Through this question, students explore biodiversity and end with a performance task of creating their own pollinator garden and what goes into the habitat to create unity and productivity. The materials provide opportunities for students to record observations from videos, read alouds, pictures, and interactive slideshows.

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 focus area by providing opportunities for students to make models, explore hands-on experiences, and learn from investigations. The materials require students to understand that earth changes can occur quickly or slowly based on natural phenomena. The materials provide opportunities for students to explore how humans' design and engineering can slow or stop these changes, such as with sea walls or levees. Through activities within the materials, students compare and contrast videos and pictures before and after natural events, such as volcanic eruptions and erosion. The study of human-designed tools and devices to protect the earth from changes is included in the materials. Students are tasked with using this information to solve the problem of water erosion on Tangier Island.

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 in module 1: "My Journey West" and module 3: "Save the Island" incorporate the three performance expectations and related components for Earth's Systems through the use of investigations, models, discussions, patterns, comparisons to solutions, tools, and resources. Module 1 focuses on using maps to show where things are located. Students build a landscape model to represent a western area using patterns they've seen through landform instruction. Module 1 also has students study water in three forms--ice, snow, and liquid--through interactives, articles, and videos. Module 3 focuses on how water and wind can change the shape of the land. Students then compare and test solutions to the erosion issues on Tangier Island.

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 engaging students in various experiences to define a simple problem. Students solve the problem through developing or improving a tool or device that solves a real life challenge, such as weather erosion and levee designs based on the lessons presented. 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 2, "Master of Materials", students learn about the properties of building materials before building three different towers. Students are asked to test the different towers and analyze which is able to bear more weight. There are five levels of engineering challenges that students go through in this module to become a "Master of Materials!". In Module 3, "Save the Island", students study a real location, Tangier Island, that is faced with issues of natural erosion and flooding. Students must engineer a solution to save the island and keep it from disappearing underwater. Students have opportunities to work together in small groups and partnerships as well as independently to solve these design challenges.

CCSS for ELA and Math Grade 2 NGSS

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

Statements of appraisal and supporting evidence:

The CCSS ELA is integrated throughout all four modules with students comparing and contrasting information, sharing in research and writing projects, and participating in collaborative conversations. CCSS math is integrated within the four modules through incorporating addition, subtraction, place value, measurement, and reasoning in handouts and annotated teacher edition sidebars. 3D learning objectives, including language objectives, are identified within the TE for each lesson. 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
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 are split into four modules that are each grounded with an "Anchor Phenomenon" and guided by driving questions that students connect with throughout the lessons. Students interact with the three dimensions as they reflect, answer questions, design and redesign models, and set goals. Students use discussion in the lesson and then record observations, ideas, and reflections in the workbook. Each module includes a performance task in which students solve real-life problems using complex and creative thinking. For example, in Module 1, "My Journey West," the learning is grounded by the "Anchor Phenomenon" of understanding and describing the land and water on Earth through models and maps. At the end of the module, students create maps and clay models of landforms for their proposed route west to show mastery of the "Anchor Phenomenon".

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.

Assessments are incorporated throughout the materials to track student progress toward mastery of the standards while connecting back to the anchoring phenomena. Each module includes investigations designed to help students make sense of the phenomena, design solutions to problems, and master the content. Formative and summative assessments include digital, multiple choice, engineering design, models, performance tasks, oral discussions, and short answer options. Progress trackers and rubrics are included in addition to strategies for supporting student misconceptions and enrichment. The "Assessment Center" allows for student accommodations and modifications, 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.

The materials include opportunities for teachers to effectively plan and utilize materials through both digital and printed guided support in the teacher editions. Teachers have options for online assignments, progress tracking/monitoring, asynchronous teaching, modeling, differentiation, reteaching, small groups, and pacing. Teachers are offered "Full Course", "Fast Track", and "Twig Coach Lessons" options for module instruction. Lessons include overviews that provide teachers with digital and print resources, necessary preparation and background information, and time frames. The teacher edition also offers extensions, rubrics, Spanish and English resources, family outreach letters, and safety guidance for effective and differentiated use. Charts, handouts, guided discussions and questions, and annotated sidebars allow for effective planning. Digital teaching guides, such as *Guide to Classroom and Language Routines*, include differentiation strategies, science learning routines, and discussion strategy 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 built for students' full participation in the science content. Each lesson is created with a multi-sensory approach, giving students with diverse learning styles the opportunity to be successful in a variety of ways. Examples of this include student discourse in whole group, small group, or partner talks with multiple language strategies. Students engage with hands-on investigations, asking and answering questions protocols, creative engineering explorations, digital resources, and independent workbook tasks. The materials start with the "Spark" section in which students connect with their own prior knowledge and to previous lessons and/or modules. The lesson flow is outlined for each driving question with a lesson map. Students are shown how the lessons connect with the "Anchor Phenomenon", such as in module 3 "How do natural processes shape the Earth?". Lessons are presented in a predictable manner and routine to support student engagement with the materials.

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

The instructional materials are designed for all students by including guidance for English learners, special needs, cultural connections, and challenge in sidebars for teacher support. Cultural connections sidebars provide opportunities for students to make real-life, cultural and linguistic connections, such as understanding that the settlers of Colorado named it the Spanish word for red because of the color of the land. Each module includes engaging questions, student-designed models, collaborative activities, technological tools, and student self-reflection to increase equity and accessibility for all students. The instructional materials include images, illustrations, and stories of different ethnic backgrounds and ages where all people represented are 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 second grade level. The grade level scope and sequences show that all standards are included. Module overviews break down the standards addressed per lesson. Assessment libraries are available for the entire grade level scope and sequence with digital, print and hands-on formative and summative assessments. Each lesson comes with a formative assessment option to support students and show progression to mastery. Materials are appropriate for second grade, including the use of leveled readers, read alouds, and independent/group workbook tasks. All teacher-guided lessons and discussion prompts are grade level appropriate. Consistent layout of modules and lessons provides students and teachers predictability.

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 "3D learning objectives", content standards, and ELA and math CCSS connections. The "Driving Question" overview explains how assessments relate to the lesson and connect to standards being assessed. Students are given opportunities for support in making meaning of the content through leveled readers and workbook reflections. "Progress Trackers" and rubrics provide teacher support in clarifying student misconceptions. The materials have a consistent layout and lessons follow a consistent routine which give opportunities to review and practice material 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 of the New Mexico content standards for second grade. The materials provide pacing guides, scope and sequences, time frames for each section and lesson, and necessary teacher preparation and exposure to background information. The teacher edition, both online and in print, has sidebars and "Differentiated Instruction: Highlights" sections to guide teacher instruction through student-facing materials. The instructional materials provide teachers with Spanish and English versions of videos, read alouds, visuals, presentations, and models. Sidebars are placed in every lesson with additional planning information, as well as supports for English learners, students with special needs, students in need of a challenge, and opportunities to plan cultural connections for all students.

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 provide resources and tools for teachers to collect, record, and analyze student proficiency of standards in both digital and print format. The "Assessment Center" provides tools for student accommodations, including page masking, larger font, different formats, and options for teachers to edit in both English and Spanish. The "Assessment Explorer" provides teachers with assessment overviews for "Pre-Exploration", "Formative Assessment", "Key Language Proficiency", "Performance Task", and "Benchmark and MCAs" in each module. Teachers are provided with rubrics, progress trackers, alternative assessments, remediation and advancement opportunities, and differentiation strategies. English learners, students with special needs, and culturally and linguistically diverse learners have options for oral assessments as well as digital assessments in Spanish.

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. "Driving Question" (DQ) overviews include a "Differentiated Instruction-Highlights" section in the print teacher edition. Strategies and scaffolds are included as sidebars throughout lessons for English learners and special needs students. They also include cultural connections to share diverse perspectives and challenge activities for advanced learners. Sidebars address both academic and physical supports for investigations for students with special needs. "Progress Trackers" and rubrics aid in monitoring progress and offer scaffolding/reteaching strategies to address misconceptions for 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. The digital "Assessment Center" allows teachers to provide accommodations on assessments.

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. Pictures of children and adults from different backgrounds are included to support students seeing themselves in the materials. In the "Cultural Connections" sidebars, students validate and affirm their own identities as they connect to others' cultures through reflection and discussion. Throughout the lessons, students are encouraged to continue to make cross-curricular and cultural connections. Supported by prompts throughout the materials, students discuss and connect with their own personal lives and their communities through exploration, reflection, discourse, and hands-on projects.

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, where all people represented in the material are seen as scientists. "Cultural Connections" sidebars provide opportunities for students to make real-life cultural and linguistic connections to science-themed topics. Each lesson provides teacher guidance to support students in sharing diverse, asset-based perspectives. "Cultural Connections" sidebars also highlight the relationship of location descriptions with Spanish language names and Spanish word cognates for scientific terms and vocabulary.

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 second grade instructional materials are standards-aligned and link to math and language objectives, project-based learning, and multiple forms of assessments. It begins 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 sidebars to support teachers in meeting the needs of special needs students, English learners, advanced learners, and culturally diverse students. Summative and formative assessments are provided in multiple ways--both digitally, and through discussion, observation, progress trackers and rubrics, and performance-based tasks. Teachers have access to guidance to accompany the assessment that provides strategies for students who are not yet mastering a concept and may need re-teaching or a different kind of task. 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 the 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 second grade science 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 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 their observations, learning, and reflections. The instructional material offers differentiation ideas and resources for advanced, on grade level, special needs, and English learners. Investigations and "Cultural Connections" 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 Twig Science Grade 2 provide efficient and effective instruction of the Next Generation Science Standards (NGSS) and include some CCSS ELA and 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 with modifications and accommodations. The Twig Science materials for grade 2 list ELA and math standards when applicable throughout each module and lesson and include language objectives for each 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 progress trackers to monitor students 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. The materials provide family outreach letters in both English and Spanish. The student Twig Books (TB) depict a variety of cultures, "disabilities", impairments, and ages without negative connotations associated. TBs, both print and digital, are interactive, engaging, and directly related to the standards and anchor phenomena being studied. The materials effectively progress 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.