Washoe County School District K-5 Science
2020 Instructional Materials Evaluation Rubric
(Certified Teaching Professional Form)

Category 1: Designed for Three-Dimensional Learning

Criterion 1A: Phenomena and Problems

Instructional materials focus on students making sense of phenomena or designing solutions to problems which drives student learning.

- Students are engaged with phenomena or problems that can be explained or solved through the application of the three-dimensions.
- A good phenomenon builds on everyday student experiences and targets grade appropriate learning goals.
- Anchoring, investigative and everyday phenomena may be present.
- Engineering lessons require students to use elements of the science core ideas together with elements of core ideas from engineering design to solve problems.

Less of this:	**More** of this:
Phenomena are just for the initial hook.	Phenomena drives the learning.
Phenomena are fun or flashy to engage students.	Phenomena that builds on everyday experiences supports engagement.
Phenomena are brought in after students develop the science ideas so they can apply what they learned.	The development of science ideas is anchored in investigations of phenomena.
Engineering problems are unrelated to the science learning.	Engineering involves designing solutions to problems that arise from phenomena.

Examples of Evidence:

- ◊ Photographs of trash washed up on a beach that leads into a unit on waves in 4th grade physical science unit. (A first-hand experience, video, photograph or data set to start a learning sequence that becomes the "why" for further study grounded in everyday student experiences.)
- ◊ A time lapse video of a badger decomposing is shown to start a life science unit on matter and energy in ecosystems. Students return to the video throughout to explain what is happening.
- ◊ Garbage from the lunchroom is examined to start a unit on matter and how it changes in the 5th grade physical science unit.
- ◊ 3rd grade students explore balloons, aluminum cans, styrofoam beads, and transparent tape to make observations and generate questions about static electricity in the physical science unit, lesson 3.
- ◊ Students address the problem of communicating at a distance without sound following a study of light in the 1st grade physical science unit.

Specific Evidence from Materials
• Students look at photographs of an aquarium that leads into the unit "How do animals and plants survive?" They what a scientist does. Then students become an aquarium scientist to answer "How does Spruce the Sea Turtle do what she needs to do to survive?"

- Students play the Survival Game to teach that all living things need: water, air, and food to survive.
- Students make observations how humans eat carrots by observing their partner eat a carrot.
- Students use their bodies to model breaking food apart and why animals break their food into smaller pieces.
- Teacher facilitates students to create a chart: What Scientists Do? This tool helps students learn to recognize scientific practices scientists do.
- Students have to figure out how to solve a problem for a puppet-theater company by using light and sound. The puppet- theater company are hoping that the students can figure out how to use light to make a picture on a wall so they will not have to carry all the heavy parts to their shows.
- Students observe a video with a cave and a flashlight to gather evidence on what makes something light or dark.
- Students go on a Light-Source Hunt around the school to gather data about light sources and to record this data in their Investigation Notebooks.
- Teacher will demonstrate plucking the large rubber band by placing one end of the rubber band under one foot and the other end in one hand that is waist high. Stretch the rubber band taut. A student will come up and pluck, the rubber band. The other students observe closely while the teacher guides them with questions to think about: What do you observe when the rubber band is plucked? What do you see the rubber band doing while it is making a sound?
- In Activity 3, teacher will lead students outside to make observations of the sky. Students will return to this same location in later lessons (Lessons 1.2, 3.2, 3.3, and 4.1) for additional observations. Teacher will choose an outdoor location where students can easily observe the sky and the horizon to the east, west, and south. Students will observe and write their findings in an investigation notebook.

To what extent do the materials support Criterion 1A? Include your reasoning.
Amplify Science supports the Criterion 1A because students get in a role of being a scientist. Students will practice and reflect on what real scientists do as part of their work throughout the units. First they are aquarium scientists in unit 1, next they act as an engineer for unit 2, and last they act as sky scientists in unit 3. Students are engaged through videos and games to learn the phenomenon. The teacher guides them through activities the students observe such as plucking a rubber band to create noise, or observe the sky to look for patterns. They are exploring and testing the anchoring phenomena throughout the lessons of the units.

Criterion 1B: Integrating the Three-Dimensions

Instructional materials integrate elements of the Science and Engineering Practices, Crosscutting Concepts and Disciplinary Core Ideas.

- Students develop and use multiple grade-appropriate elements of each dimension.
- The dimensions are integrated to work together and are not taught in isolation.
- Learning experiences integrate multiple different pairings of the dimensions to build understanding of the targeted performance expectations.
- Engineering is integrated with at least once per domain of science.

Less of this:	**More** of this:
Students only engage in a single practice element in a lesson.	The lesson helps students use and develop multiple practice elements.
Lessons teach the dimensions separately or only address them at the general level.	Lessons integrate grade-appropriate elements for each dimension.
Engineering lessons focus on trial and error activities that don't require science or engineering knowledge.	Grade-appropriate elements of engineering design and science core ideas are integrated with the other dimensions.
Engineering consists of challenges or step-by-step directions to build something.	Engineering is integrated into the grade-appropriate science core ideas and use explanations of phenomena to design solutions.

Examples of Evidence:

- ◊ 4th grade students conduct an investigation using fair tests in which variables are controlled and the number of trials considered, including collecting measurements and representing data in tables, with balls and ramps to determine cause and effect relationships of speed and energy in unit 2 lesson 4.
- ◊ Students ask questions about waves moving objects and collaboratively investigate how to make different looking waves in water and analyze how these waves affect a floating object in the physical science unit.
- ◊ 3rd grade students generate, test and refine solutions to keep two moving objects from touching each other by applying ideas learned about magnets in lesson 9.
- ◊ With teacher guidance, kindergarten students conduct an investigation with peers to compare the effects of different directions of pushes and pulls on playground balls, student chairs and erasers on different surfaces in the physical science unit, lesson 3.

Specific Evidence from Materials
• Students ask questions about the aquarium and how scientists are here to learn about the natural word. • Students observe what structures their partner uses to get and eat a carrot. Then write their findings in their investigation notebook. Unit 1. Animals and Plants Survive. • Student observe partners breathing to figure out that we all need air including animals. Then students watch a video of a sea turtle breathing. • Students watch a video to gather evidence to help answer How does Spruce the Sea Turtle do what she needs to do to Survive?" • Students observe outdoors for sky patterns and write and draw what they see in their Investigation notebooks for unit 3 Spinning Earth.

- Students observe what happens when you pluck a rubber band in unit 2 Light and Sound.
- Students organize their Sky observations onto a Daytime/Nighttime chart. (Spinning Earth)

To what extent do the materials support Criterion 1B? Include your reasoning.
Amplify Science supports Criterion 1b because students are observing and recording their findings throughout lessons. They record their findings in an Investigation notebook and discuss what they found with a partner or the whole class by watching videos, teacher demonstrations, or students modeling the phenomenon to the entire class. Students are more of an observer but they are not investigating hands on activities where they test the materials or phenomenon on their own.

Criterion 1C: Coherence

Instructional materials help students develop increasingly sophisticated understandings within and across grade-levels.

- Lessons fit together to target a set of performance expectations with multiple opportunities for students to revise understandings over time.
- Instructional materials make connections between lessons, units and grade levels.
- Lessons build on students' prior learning in all three dimensions.
- Students engage in learning experiences with explicit connections to other science disciplines and other subjects with intention.

Less of this:	**More** of this:
Lessons are unrelated.	Lessons are presented in a logical sequence to develop understandings.
Lessons build on prior learning but only for the DCIs.	Lessons work together with students' foundational knowledge and practice from prior lessons and grade levels.
Science domains are taught in isolation.	When appropriate, science domains are integrated to show connections.
Other subjects, when included, are not intentionally chosen to support grade-level standards.	Grade-level appropriate standards from ELA, math or other subject areas are integrated with science learning.

Examples of Evidence:

- ◊ In the first unit, students address the physical science standards around the phenomena of garbage and partially address a life science standard related to decomposers. In the second unit on ecosystems, students extend and apply their understanding of decomposers which leads to an engineering problem about materials such as plastics that do not decompose.
- ◊ 5th grade students are investigating water sources around the Earth and make connections to properties of matter in both the physical science and earth science units and prior learning about weather and climate from 3rd grade.
- ◊ 2nd grade students plan and conduct an investigation with water and earth materials as a whole class in one lesson and then in the next lesson students work with a small group to plan and conduct another investigation with wind and earth materials to further learning of core ideas and practices.
- ◊ Students apply ELA learning to write a set of directions for conducting an investigation in the earth science unit, lesson 6.
- ◊ Students use line plots to analyze climate data in grade 3, unit 4.

Specific Evidence from Materials
Unit 3 Spinning Earth students learn through a variety of activities. • In Chapter 1, students learn that they will take on the role of sky scientists working to understand why the sky looks different. Students gather data as they make initial observations of the daytime sky, and later use webcams to observe what the sky looks like in different places on Earth at the same time. They also gather data, from an informational text about what two girls observe in the nighttime sky. Students organize the data they collected to draw conclusions about what can be observed during the daytime and the nighttime. At the end of the chapter, students engage in a whole-class

writing activity to address the question of why the sky looked different to a boy than to his grandma.

- In Chapter 2, students investigate the question Why was it daytime for Sai when it was nighttime for his grandma? Students begin to understand Earth as observed from space by watching a video and examining models of Earth. They organize webcam data from Chapter 1 on a globe and notice a pattern: the places they observed that were experiencing daytime are on one part of the globe, while those experiencing nighttime are on another.
- In Chapter 3, students are introduced to a new observation from Sai: it changed from daytime to nighttime while he was talking on the phone with his grandma. Students work to figure out why. They begin by watching a video of the sunset to gather information about what they see in the sky when it changes from daytime to nighttime. Noticing that the sun is in different places in the sky and appears to go below the horizon, students go on to observe and record the sun's position in the sky throughout the day. They organize their data on a Sky Mural, which reveals that as the day progresses. Students read an informational text, participate in a kinesthetic activity and apply this understanding to explain the pattern of moonrise and moonset. The class constructs a scientific explanation to address the Chapter Question.
- In Chapter 4, students consider a new question: What will Sai see in the sky when he calls his grandma (at the same time) tomorrow? They conduct additional sky observations and add the sun's position for each time to the Sky Mural. Through the Sky Mural additions, as well as an activity in which students reorganize their data in a data table, students figure out that the sun pattern they observed in Chapter 3 repeats every day. They return to an information book they read and engage in a kinesthetic activity to construct an understanding that Earth is always spinning, which causes us to see repeating daily patterns in the sky. The class constructs a scientific explanation to address the Chapter 4 Question. Students apply what they have learned in the unit by writing and illustrating a mini-book.
- In Chapter 5, students reflect what they have learned.
- Students investigate with their globes using flashlights to determine how much of the globe is lit up and how much is dark using fractions.

To what extent do the materials support Criterion 1C? Include your reasoning.
The unit lessons are a logical sequence to develop understanding. The lessons are built upon each other using prior knowledge from the last the lesson. Throughout the lessons science domains are introduced and discussed with the students. They use a variety of activities to help students understand the concepts being taught. Teacher uses slide shows, videos, shared reads, interactive writing, kinesthetic activities, and writing to help students understand and apply what they are learning. Amplify Science incorporates ELA standards and learning methods within each lesson. One lesson taught the students to use a Venn diagram. The students are always writing and discussing by using their speaking and listening standards. The materials even give some math ideas to explore towards the end of lessons such as when students were exploring how the globe is lit and dark what portions of the globe is lit by the sun and which portions are not.

Category 2: Instructional Supports

Criterion 2A: Assessing the Three-Dimensions

Instructional materials support monitoring student progress in all three dimensions.

- Multiple and varied assessments allow students to demonstrate learning in all three dimensions including application of knowledge in performance tasks.
- Formative assessments, including teacher, self and peer assessments, are embedded throughout to inform instruction.
- Assessments are unbiased and elicit direct, observable evidence from all students.
- A phenomena or problem drives tasks, and information from the task is required to complete it.
- Rubrics and scoring guidelines are provided for interpreting student performance including sample student responses

Less of this:	**More** of this:
Checks for understanding elicit only a few student responses or rely primarily on group projects.	Individual student artifacts are used to measure student understanding of each dimension.
Only summative assessments that measure the end point of understanding are provided.	Formative assessments provide feedback to adjust instruction and inform students of their progress.
Assessments are primarily rote memorization of facts and terminology.	Assessments reflect application of all three dimensions including tasks that are driven by phenomena or problems.
Only multiple-choice tests are given.	Multiple measures and types of assessment are used throughout.

Examples of Evidence:

- ◊ As students are engaged in a performance task in unit 3, lesson 2, there are indicators for teachers to look for and information about possible responses. This information is embedded in the lesson.
- ◊ In unit 1, there are two performance assessments, peer feedback throughout, exits slips, a summative assessment, and a prewrite.
- ◊ Individual student learning is assessed using written work that answers the driving question of the unit. (Earth Science, p. 76)

Specific Evidence from Materials
• Pre- Unit assessment conversations- Students are given photographs and questions to answer orally with a partner. The teacher will record their ideas. Then teacher affirms ideas by recording their thoughts on a chart. • Embedded Formative Assessment, On the Fly Assessment 1: Visualizing Tortoise Structures in use- Students describe their visualizations to teachers. • Clipboard Assessment tool- Teacher conduct brief talk based checks that reveal students thinking. • Critical Juncture Assessments- Partners listen to student responses and state their evidence. • Possible answers:

Investigation Notebook Engineer's Notes: Making Sense of Shadows (page 7) Image: Light source and surface with a hand drawn in between the two. Writing: I put my hand in front of the light, so I saw a shadow. Or: I saw a shadow on the floor, because I put my hand in front of the light

To what extent do the materials support Criterion 2A? Include your reasoning.
Amplify Science support Criterion 2A by checking for understanding with a variety of oral assessments. Teacher will observe and record what they hear from students and to determine if they understand the concepts being taught. Also the teacher can take the written work the student has completed to see if they are applying what they have learned It is based on oral language and writing skills. They give possible ideas of what students may say or write at the end of the lesson.

Criterion 2B: Instructional Experiences

Instructional materials support equitable access to science knowledge and practice for all students.

- Students engage with direct (preferably first-hand), shared experiences that are relevant and authentic, serve as the basis for learning and meet the developmental needs of elementary students.
- Students' questions, prior experiences and diverse backgrounds related to the phenomenon or problem drive learning.
- Materials provide an opportunity to learn by allowing for the development of scientific understandings over time using multiple modalities.
- Materials provide opportunities for students to make connections to and explore the natural world outside the classroom.

Less of this:	**More** of this:
The lesson focuses on a topic that some students have experienced.	Direct experiences in the classroom provide access and equity for all students.
Student questions and prior experiences are not connected to the learning.	Materials provide supports for connecting students' own questions to the targeted learning.
Students read about what others have done.	Students learn through concrete experiences.
Only one or two modalities are used.	Multiple modalities are used throughout each instructional segment.

Examples of Evidence:

- ◊ Students develop physical models of a landfill as open and closed systems to observe during the 5th grade garbage unit.
- ◊ Students identify components of garbage disposal in their homes and communities which connects the phenomena that started the unit.
- ◊ Students conduct a first-hand investigation of erosion and deposition using a stream table, observe time-lapse videos of landslides, engage in a virtual investigation, read accounts of earth changes by wind and record changes to the playground after a snow event in the 4th grade earth science unit.
- ◊ Students raise trout from eggs in the classroom and make observations over time as part of their study of traits in the life science unit.

Specific Evidence from Materials
• Teacher leads a Shared Reading: Tortoise Parts and introduces the strategy of visualizing while reading. Unit 1- Animals and Plants • Students use structure- Function language frames Cards set to talk like a scientist. For example: A _____uses its _____to_____. • Students write about survival in their investigation notebooks. • Word rings are a tool to help students spell the word correctly. • Shared Writing on answering "How does Spruce the Sea Turtle do what she needs to do to Survive?" Students and teacher co-write what they learned. • Throughout the unit, students will have opportunities to browse and read the books in pairs. For these Partner Reads, you may choose to assign the

same reading partners throughout the unit or switch reading partners with each book.

- A Read-Aloud of Can You See in the Dark? introduces students to the practice of asking questions. Also, it gets students to think about how dark it really needs to be in order to not be able to see.
- Students create diagrams of how bright and dark surfaces are made.
- Students will use three sentence strips, one for each part of the language frame, write "The surface looks _____," "because light from the _____" "gets to the _____."
- Students create a mini book for sky patterns in unit 3 Spinning Earth.

To what extent do the materials support Criterion 2B? Include your reasoning.
Amplify Science support Criterion 2B because the lessons are very similar. The teacher begins with a story line that the students need to investigate by being a type of scientist. The students learn through videos, discussions, activities- shared reads, read alouds, and partner readings to understand the phenomenon they are testing and problem solving. Students write what they find by recording their findings in the Investigation books or through an activity that describes what they have learned either by shared writing or independent writing by students writing a book. Students learn reading strategies that science would use too, for example asking questions, visualizing, or Venn diagrams to show the differences or similarities of an object. Students learn through materials that are engaging so that they bring meaning into what they are learning. They are not using a lot of investigations with hands on activities more of the activities are to make meaning through books and videos.

Criterion 2C: Student Sense-making

Instructional materials support equitable access to science knowledge and practice for all students.

- Materials support student sense-making at both an individual and group level.
- Classroom discourse focuses on expressing and clarifying student reasoning with opportunities for students to share ideas and feedback with each other that supports the iterative and collaborative co-construction of explanations.
- Materials include supports for oral and written language processing to involve students in scientific discourse for sense-making including a language-in-use approach.

Less of this:	**More** of this:
The teacher tells students what they need to know.	Students figure out explanations through classroom discourse with each other.
The teacher calls on a few students to share reasoning.	All students have the opportunity to share their thinking orally or in writing.
The focus is only on getting the "right" answer.	Sense-making begins with initial student ideas that progress in sophistication.
Vocabulary is front-loaded. All students are provided with sentence frames.	Specialized vocabulary is embedded in the instructional sequence with multiple opportunities to use and development over time. Writing supports are differentiated.

Examples of Evidence:

- ◊ 5th grade students develop models of how scents travel that are refined over the course of a three weeks using a combination of visual and written language providing multiple opportunities to develop precise vocabulary in the physical science unit.
- ◊ 3rd grade students answer questions in their notebook individually using pictures and words to explain their initial ideas about how static electricity works and have the opportunity to revise this after discussing with a peer and the whole class in the physical science unit.
- ◊ The teacher facilitates a class discussion using a word wall where kindergarten students share observations with a shoulder partner and the whole group about the kinds of things in their homes to figure out that the things we need come from nature.
- ◊ Suggested sentence frames are included to support oral and written responses when needed with the goal of independence.

Specific Evidence from Materials
• Vocabulary is taught with a routine: Teacher introduces the vocabulary by holding the card. The teacher states " this word is structure. A structure is a part of an object or a living thing that does something." Students repeat the word and then whispers to a partner. Then teacher repeats the meaning. This routine follows throughout all units. • Students work with a partner to discuss the evidence they found on a video they watched. (Sea Turtles breathing) • Teacher leads discussion on how

- Students independently drew their ideas and then wrote their ideas on how to make a shadow on a particular surface, and how to make shadows of different shapes and sizes. (Unit 2 Light and Sound)
- A partner card sort using the Shadow Cards (which are images from What Made This Shadow?) helps students see how a light source, a shadow, and an object casting the shadow are connected.
- After partners share, they can record (in their notebooks) an additional example of how a shadow is made. Write additional examples. Invite students to make additional pages for the What Made This Shadow? book, based on their own experiences.
- Partners will talk together to predict whether it is daytime or nighttime in that place. Then will use their bodies to show their prediction.(Unit 3 Spinning Earth)
- Partners read: Whose Lunch is This? Then they ust record structure they observed on a sticky note to discuss with the whole class. (Unit 1 Animals and Plants)

To what extent do the materials support Criterion 2C? Include your reasoning.
Amplify Science supports Criterion 2C because students are working with partners and class discussions to understand and make meaning of the concepts. Classroom discussions are lead by the teacher to have students explain their ideas to make meaning and sense of the content. The teacher always records students' ideas on charts to refer back to their thinking throughout the lessons to build on to their thinking or change what they had before. Meaningful activities help students work through discourse with each other either by partner activities of observing, discussing, reading, or writing what they are learning. Then it is returned to the class to discuss their learnings from the activities with their partners to what they have learned or found. All students are able to participate because language frames are provided to help students state their ideas and write them.

Criterion 2D: Teacher Supports

Instructional materials support teacher planning and instruction.

- Materials include background knowledge in both science content and pedagogy and student preconceptions.
- Materials have clear and concise instructional directions and connections to the standards.
- Materials provide guidance to support differentiated instruction, extra support and extensions at the appropriate level for a broad range of learners.
- Materials include professional learning and additional instructional planning resources.
- Materials have supports for families to extend learning and offers suggestions for how to help their student(s) at home.

Examples of Evidence:

- ◊ Information prior to lessons gives teachers things to except that students may already know in unit 1 p.12 in addition to how their understandings will build.
- ◊ 1st grade students have a choice to investigate different variables related to shadows, and suggestions are included as well as extensions to do at home. (Light unit, p. 40)
- ◊ The assessments include recommendations for additional supports when students don't meet expectations. "Students may struggle to articulate that scientists look back at the data they collect to look for patterns and to draw conclusions about phenomena. One way to support them in this thinking might be to share an anecdote such as, "When I was growing up, my mom used to measure my height by marking it on the wall in the pantry. When I look back at those marks, I notice patterns, like that I grew faster between the ages of 5 and 8 than I did when I was older."" (p.14)
- ◊ Students make observations of the sky with their families, looking for patterns over time. Families are provided with background information on how to record observations and what patterns to expect.

Specific Evidence from Materials
• Planning for the unit :summarizes everything part of what happens in the unit. It provides Unit overview, what is in the unit and why; How it is broken into chapters; Unit Map; Progress Build; Getting Ready to Teach: before, while, and after, Materials at a glance, Preparation at a glance, Science Background, Crosscutting Concepts, References, and Standards at a glance pp. 6- 23 (Animals and Plant Defenses) • Note: Preconceptions. Some students may think that plants' food is fertilizer or something in the soil.(Animals and Plant Defenses p. 17) • Preparation for lesson the day before: Tour the school to locate possible light sources. Take a walk around your school to locate different light sources that students might observe on their Light-Source Hunt. (Unit 2 Light and Sound, 1.3 brief) • Explicit pairing of activities. Before students engage in the Shared Listening routine, they observe and record in their Investigation Notebooks different sources of light around their school. This activity helps students gather and record ideas in drawing and writing to refer to later. Using the information in their Investigation Notebooks, students then rehearse and listen to the language of science as they share with a partner and then as the class shares.

- Overstimulation. Some students may have difficulty focusing on the task at hand during the Light-Source Hunt. Consider ways you can make expectations clear ahead of time and support students in focusing their efforts on observing and recording different sources of light.
- English learners will have many opportunities to practice hearing and saying these words to deepen their understanding as the unit progresses with the words: observe and source. (Light and Sound)
- Materials Note: Replacing the Sun Card with a Flashlight In Activity 2 and other activities in this unit, you will use the Sun Card provided in the kit to represent the sun. However, if you have a flashlight in your classroom, consider using it instead for an engaging modification. Check your flashlight ahead of time to make sure it is not so bright that it hurts students' eyes. A slightly dim flashlight will be ideal for this activity. (Unit 3 Spinning Earth, lesson 2.2, Activity 3)
- Going Further: Providing Time for Students to Debate Scientists ask and answer questions when they communicate. This activity in which students choose a body movement provides an excellent context for a controlled debate. If your class is ready for it, encourage conversations between students. You might organize the pairs so that students who made a sun with their arms talk with students who made stars with their hands or you might pair students who made the same body movement. Rather than leading discussion, let students ask one another questions about the choices they made, and explain their thinking. In addition, you can prompt students to use the words I agree because or I disagree because as ways of continuing the conversation.(Unit 3 Spinning Earth, lesson 2.2, activity 4)
- • PS4.B: Electromagnetic Radiation: • Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)

To what extent do the materials support Criterion 2D? Include your reasoning.
The materials support Criterion 2D because it provides the teacher information to prepare the lesson and further background knowledge of the concept. The beginning of each lesson there is a page that gets the teacher prepared for the lesson the day before. There is a list of things for the teacher to prepare before they teach the lesson. On the same page you will find differentiation ideas for learners. Also, it gives teachers information of potential challenges and gives ideas of how to work it out in the lesson brief. Furthermore, there is a section for how to help English learners during the lesson. It provides clear instructions and guidance of how to help them in their learning. Standards are provided at the end of the lesson brief. The background information on the last page of each activity in each chapter. The rationale is on that page too. It provides why the lesson is taught they way it is taught. Instructional suggestions are at the end of the activity to show how to use materials for each activity and to go further with the lesson. Overall, Amplify Science does a great job in supporting the teacher with the lesson.

Category 3: Student Materials

Criterion 3A: Program Design

Instructional materials represent a comprehensive K-5 core program.

- Materials provide instruction that correlates to our recommended instructional minutes for science.
- Materials are available in both English and Spanish.
- Graphic organizers and templates for science notebooks are included.
- Teacher and student materials have resources both in print and online.
- Multimedia supports are included such as videos, tutorials and simulations and when appropriate reflect the diversity of our students and society in a culturally responsive manner including different genders and sexual orientations, from many cultures and nations, both contemporary and historical.
- Technology options are appropriate for both classroom and home use possibly including translation capabilities.

Examples of Evidence:

◊ There are four units, each representing nine weeks of instruction at 180 minutes a week. This is short of our recommended minutes of 240 minutes a week for 5th grade.

◊ There are 132 60-min lessons for the whole year. This correlates to our recommended instructional minutes of 220 minutes per week for grades K-2. (3-4 60-min lessons per week)

Specific Evidence from Materials
• Unit 1 Animals and Plants Defenses, Unit 2 Light and Sound, and Unit 3 Spinning Earth. • 45 minutes lessons • Books are provided in kit: Tortoise Parts, Whose Lunch is This?, Parents and Offsprings, Frog Models, and Spikes, Spines, and Shells: A Defense Handbook. Books are online and ready to print. • Videos, slides, and photographs show diversity. • Materials such graphic organizers and mini books teacher needs to make copies. • Investigation Notebooks are provided • Materials are not available in both English and Spanish.

To what extent do the materials support Criterion 3A? Include your reasoning.
Amplify Science somewhat supports the Criterion 3A. The material provides instruction that correlates to our recommended instructional minutes for science it actually may go over the amount. There are 3 units that have 45 minute lessons each day. Vocabulary cards are provided with the kit but also on line. The videos, slides, and photographs show diversity among our students. However, the materials is not available in Spanish.

Criterion 3B: Science Equipment

Instructional materials include hands-on materials and equipment that support three-dimensional learning.

- Enough materials are included to allow students to do the investigations themselves.
- Materials are of a quality that will last through many uses.
- Materials include the tools necessary to make observations and measurements and conduct investigations.

Examples of Evidence:

- ◊ There are enough thermometers, graduated cylinders, balances, magnifying glasses and measuring tapes for a whole class to use in small groups.
- ◊ Everything is included to engage in the lessons except for things that would already be found in the classroom like tape and colored pencils.

Specific Evidence from Materials
• Materials provides enough for the teacher to model to the class. Then for the class to role play with the items: tuning fork, rubber band, flashlights, and blow up globes • Investigation notebooks are included to make observations. • Materials such as class books are provided enough materials to allow students to read and work with a partner.

To what extent do the materials support Criterion 3B? Include your reasoning.
Amplify Science provides enough materials to support Criterion 3B.They give enough books that are used in the program. The science equipment is mainly used for the teacher to model. There is not enough investigations for the students to do on their own. Amplify Science provided enough cups for the carrot investigation however, it is a partner activity.

Criterion 3C: Reading Materials

Instructional materials include grade-appropriate texts that support three-dimensional learning.

- A range of text types and genres, both print and online, are embedded in learning experiences.
- Texts support context-specific academic vocabulary.
- Materials reflect the diversity of our students and society in a culturally responsive manner including different genders and sexual orientations, from many cultures and nations, both contemporary and historical.
- Materials include supports for reading comprehension for a variety of student needs including high-quality questions.

Examples of Evidence:

- ◊ Texts include an interview of Sylvia Earle and profiles of Chien Shiung Wu and Benjamin Banneker. These highlight the connections to the science students are learning. Pictures of scientists working in the field represent the diversity of our students.
- ◊ Cultural myths about the sun and stars are included in the earth/space science unit.
- ◊ Vocabulary is highlighted in the reading that follows a concrete experience where the vocabulary is first introduced.

Specific Evidence from Materials
• Texts include patterns of Earth and Space, after sunset (fictional), a walk through seasons, Nightime Investigation, what spins? (fictional) – these highlight how the Earth moves around the sun and connects to scientists working in the field. • Vocabulary is highlighted in the reading. • Nightime Investigation profiles Laura Prugh a scientist who investigates animals. It reflects diversity because it shows a woman working in the science field. • Reading comprehension strategies are taught during shared reads lessons.

To what extent do the materials support Criterion 1A? Include your reasoning.
Amplify Science supports Criterion 3C. It provides a variety of genres both print and online and the text supports the specific academic vocabulary that is taught within the lessons. Materials reflect diversity by showing a woman working in her field from one of the books the students get to read. Amplify Science is focused on reading.

Referenced, adapted and formatted from the following documents:

Achieve, Inc. (2016). EQuIP Rubric, Version 3.0.

Achieve, Inc. (2018). Science Task Prescreen.

Achieve, Inc. (2016). Using Phenomena in NGSS-Designed Lessons and Units.

Achieve, Inc. (2017). Primary Evaluation of Essential Criteria (PEEC) for Next Generation Science Standards Instructional Materials Design.

Brennan et al. (2017) *Priority Features of NGSS-Aligned Instructional Materials: Recommendations for Publishers, Reviewers and Educators* [White paper].

BSCS (2017). Guidelines for the Evaluation of Instructional Materials in Science.

BSCS Science Learning (2018). NextGen TIME

MacDonald et al. (2020). *Design Principles for Engaging Multilingual Learners in Three-Dimensional Science* Wisconsin Center for Education Research (WCER) Working Paper No. 2020-1. https://wcer.wisc.edu/docs/working-papers/WCER_Working_Paper_No_2020_1.pdf

National Academies of Sciences, Engineering, and Medicine (NASEM) (2017). *Seeing Students Learn Science: Integrating Assessment and Instruction in the Classroom.* Washington, DC: The National Academies Press.

National Research Council (NRC) (2012). *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas.* Washington, DC: The National Academies Press.

NGSS Lead States (2013). *Next Generation Science Standards: For States, By States.* Washington, DC: The National Academies Press.

Nolan, C. (2015). *Getting their hands dirty: Engaging learners in authentic science practices outside the classroom* (Practice Brief No. 20). STEM Teaching Tools.

Washoe County School District Needs Evaluation

Washoe County School District. (2020). Request for Instructional Material Submission RFP 2020A.