EQuIP Rubric for Science Unit
Peer Review Panel Feedback

Overall Rating:

E/I

Revision Needed

Unit Name: Why is Our Corn Changing?
Grade Level: 2

Category I. NGSS 3D Design

		Evidence of Quality?			
		None	Inadequate	Adequate	Extensive
Unit Criteria	A. **Explaining Phenomena/Designing Solutions**: Making sense of phenomena and/or designing solutions to a problem drive student learning.				X
	B. **Three Dimensions**: Builds understanding of multiple grade-appropriate elements of the science and engineering practices (SEPs), disciplinary core ideas (DCIs), and crosscutting concepts (CCCs) *that are deliberately selected to aid student sense-making of phenomena and/or designing of solutions*.				X
	i. *Provides opportunities to develop and use specific elements of the SEP(s).*				*X*
	ii. *Provides opportunities to develop and use specific elements of the DCI(s).*				*X*
	iii. *Provides opportunities to develop and use specific elements of the CCC(s).*				*X*
	C. **Integrating the Three Dimensions:** Student sense-making of phenomena and/or designing of solutions requires student performances that integrate elements of the SEPs, CCCs, and DCIs.				X
	D. **Unit Coherence**: Lessons fit together to target a set of performance expectations.				X
	E. **Multiple Science Domains**: *When appropriate*, links are made across the science domains of life science, physical science and Earth and space science.			X	
	F. **Math and ELA:** Provides grade-appropriate connection(s) to the Common Core State Standards in Mathematics and/or English Language Arts & Literacy in History/Social Studies, Science and Technical Subjects.				X

Category I Rating: **3**

At least adequate evidence for all of the unit criteria in the category; extensive evidence for criteria A–C

Criterion A.

Specific evidence from materials and review team consensus reasoning:

In this unit, the phenomenon emerges over time. The evidence is located in the Teacher's Guide, Storyline, page 1, the synopsis section. As the students engage with the changing corn, they have opportunities to discuss what they already know and questions they have about the corn. The evidence includes the class created "I Notice, I Wonder" chart in lessons 1, 2, 3, and 6 to name a few. This method permits the students to showcase what they noticed during the investigation and what they are still wondering about. The students are also provided with an opportunity to develop questions during Lesson 7. The questioning strategies continue throughout the lessons, as students choose investigation questions and carry out investigations.

The unit allows students to make sense of phenomena. The students investigate the various causes of why corn can change if provided with the right conditions such as: water, air, and sunlight. The students are provided with several tasks in order to ask and investigate questions to determine scientific results. The evidence is located in Lesson 8(a), Teacher's Guide.

Suggestions for improvement:

Students may not have experience with harvest corn. Information on how this unit could work with seeds that are more familiar to students (beans, sunflower seeds) could be included.

C :

Specific evidence from materials and review team consensus reasoning:

	The lesson does engage students in several SEPs. However, the developer focuses on one in particular: planning and carrying out the investigation collaboratively to produce data to serve as the basis for evidence, see page 2 of the Teacher Edition, Storyline. The students will carry on data in several instances. In lesson 6(a), the students determine if the harvest corn needs light to keep growing. They will also investigate in which environment the plant will grow best: stinky water, clear water, soil with water, or no water. Students also have an opportunity to use mathematical thinking to record observations, measure lengths, and describe patterns, lesson 6(b). The practice defined in the PE, as well as other practices are explicitly cited in the documentation to the teacher. For instance, in Lesson 4(b), the teacher instructions tell the teacher that the practice to be used in the lesson is arguing from evidence. In the section that specifies the flow of the lesson, a template is given for teachers to use in guiding students in engaging in this practice. Using this template, the students are asked to make a claim and provide evidence that supports the claim. Throughout the unit, students are asked to help design and carry out investigations, collaboratively produce data, make observations, and make predictions. Throughout the entire unit, the developers highlight the addressed DCI(s). They use orange font to differentiate between the DCI(s) and CCC(s). The evidence can be found throughout the lessons. The students are provided an opportunity to understand what plants need in order to survive. From this unit, they understand that water and soil can help plants grow. Also, they are provided opportunities to understand the structure of plants. This evidence can be found in Lesson 6 and Lesson 8 (a). In lesson 6, the students determine that plants need sunlight. In lesson 8(a), they notice that the environment can provide water in order for plants to grow. Through a series of Consensus Building Discussions, students figure out and record an understanding of what is happening to the corn. Associations to prior knowledge are noted in the teacher notes. Appropriate vocabulary associated with the DCI is developed throughout the lessons. CCCs are noted in the Teacher Guide and then again in each of the teacher notes sections. The main CCC is patterns, but other CCCs are also highlighted as they occur during the series of lessons. The teacher notes sections give a bullet list of possible patterns that may be discovered by the students. In the lesson description, suggested prompts allow the teacher to help students uncover these patterns. The following Cross-Cutting Concepts were focused on: Cause and Effect, Structure and Function, and Patterns. They are in green font. In lesson 2, Teacher's Guide Storyline, the students look at the pattern of the corn to determine how it looks inside and outside. In lesson 5, they look at the pattern of the wet harvest corn to discuss how the pattern changes. In lesson 8, the students can use the cause and effect relationship, "Plants depend on … water… to grow" (LS2.A) and "Living things can survive only where their needs are met" (LS4. C) In the Teacher's Guide, page 46, in the strategies for consensus building discussion, Structure and Function is discussed. The teacher asks the following questions- "What is the function/purpose of the structure you saw inside the seed?; How is this related to what we think a plant/seed needs to grow?; Why didn't the dry seed have this structure?" The developers made sure that the students understood the key elements/features of plants and what is needed in order for them to grow.
	Suggestions for improvement: All three dimensions are very well documented and explained for the teacher. The document may be overwhelming for primary teachers who have limited time for understanding and planning lessons. All of this is very understandable for teachers familiar with NGSS, but maybe is too much for a majority of teachers. A different layout, with the flow of lessons separated from all the information may make this document easier to use.

Criterion C.	**Specific evidence from materials and review team consensus reasoning:** In this unit, the developer integrates all three elements to enhance the students' scientific understanding. They are interwoven throughout the lessons. An example of integration is in lesson 2. In lesson 2, the students conduct an investigation by taking the corn apart and looking at the structure of the plant while also observing its pattern. The fact that the lessons contain many practices and many crosscutting concepts adds to the integration. An example is found in Lesson 8(a). The investigation is purposely set up with multiple independent variables. In addition to having students discover patterns about plant growth, students begin to understand the concept of controlling variables.
	Suggestions for improvement:
Criterion D.	**Specific evidence from materials and review team consensus reasoning:** The developers scaffold the investigation lessons, so they can build upon each other through the students' questions. For instance, in Lesson 1, the students observe the harvest corn and they begin to ask questions. Then teachers are given next steps after each lesson. In lesson 2, the students ask what would happen if the corn is emerged in water. In lesson 3, the students notice that the corn is sprouting. Each lesson permits the students to develop questions and an understanding of the process. In the teacher notes section, the main idea of the previous lesson, the current lesson, and the next session are highlighted. Questions that arise from a student investigation are used as the basis for the next lesson. The DCI is built throughout the lesson sequence. The students are permitted to develop toward proficiency in several areas such as: observing, predicting, recording results, and drawing conclusions. In lesson 4c, the students are permitted to observe a soaked bean to analyze what is inside. In doing this, the students can understand the structure of a plant. They also can begin to understand germination. This helps them to comprehend that a kernel is a seed and seeds can develop into plants.
	Suggestions for improvement:
Criterion E.	**Specific evidence from materials and review team consensus reasoning:** The life science DCI(s) are interwoven collectively to help support students understanding of the phenomena. The students gain an awareness that harvest corn is a seed and if the right conditions are provided that the seed will produce new plants. There are several links to additional life science DCIs. There are no links to either earth science or physical science DCIs. CCCs are used extensively to make sense of the life science phenomena. The CCC(s) are extremely useful and they allow students to make sense of phenomena. Since there is no link to earth and physical science topics, the CCCs are not used for this purpose.
	Suggestions for improvement: There would be several opportunities to include links to earth science and physical science topics. Discussion of the nature of the makeup of soil or information about light could be included. However, these inclusions of other science domains may not be appropriate for this lesson series.
C	**Specific evidence from materials and review team consensus reasoning:**

	In the Teacher's Guide, the section called "Alignment and Standards" specifies how the standards are implemented for both NGSS and Common Core. A wide variety of ELA standards are incorporated into the lessons, including but not limited to discussion, explanation, and recall of information. Fewer Math standards are incorporated, but those that are included in the lessons are the types of math activities that are normally found in science lessons. Those standards that are included relate to Measurement and Data.
	Suggestions for improvement: Additional math standards could be added to this lesson when students describe how to make meaning and use the data they collect.

Category II. NGSS Instructional Supports:

		Evidence of Quality?			
		None	Inadequate	Adequate	Extensive
Unit Criteria	A. **Relevance and Authenticity**: Engages students in authentic and meaningful scenarios that reflect the practice of science and engineering as experienced in the real world.			X	
	B. **Student Ideas:** Provides opportunities for students to express, clarify, justify, interpret, and represent their ideas and respond to peer and teacher feedback orally and/or in written form as appropriate.			X	
	C. **Building Progressions**: Identifies and builds on students' prior learning in all three dimensions, including providing support to teachers.		X		
	D. **Scientific Accuracy**: Uses scientifically accurate and grade-appropriate scientific information, phenomena, and representations to support students' three-dimensional learning.			X	
	E. **Differentiated Instruction**: Provides guidance for teachers to support differentiated instruction.		X		
	F. **Teacher Support for Unit Coherence:** Supports teachers in facilitating coherent student learning experiences over time.			X	
	G. **Scaffolded differentiation over time:** Provides supports to help students engage in the practices as needed and gradually adjusts supports over time so that students are increasingly responsible for making sense of phenomena and/or designing solutions to problems.				X

Category II Rating: **2**

Some evidence for all criteria in the category and adequate evidence for at least five criteria, including A

Criterion A.

Specific evidence from materials and review team consensus reasoning:

The phenomenon that engages students is the sprouting of harvest corn. Harvest corn is used as a fall decoration in many schools and other locations, so is likely to be familiar to students. Students experience the phenomenon first-hand because it is sprouted in their classroom. Thus, it's likely to be authentic.

Lessons 1 and 2 note that students might have only prior knowledge of plastic corn. No explicit suggestions are included for how to connect to the students' home, neighborhood, community, culture.

Students have opportunities to ask and investigate their own questions that arise from experiencing the phenomenon first-hand and these investigations help them to explain the phenomenon. Evidence includes:

- Students generate new questions in most lessons. They are noted in purple italics in the "What We Figure Out" column. Their subsequent making meaning and engaging in argument from evidence stems from these questions.
- Lessons 8-9 requires students to independently plan and carry out an investigation based on their questions – after having similar scaffolded experiences in lessons 1-7. They then look at their findings and argue from evidence.

Suggestions for improvement:

We suggest that the authors include additional information for Criterion A.ii – connections to home, neighborhood, community and/or culture.

It is often unclear which questions are generated by students and which are teacher-given. It would be helpful to clarify when students are investigating questions that they generated on their own because this would increase the authenticity of the experiences.

C

Specific evidence from materials and review team consensus reasoning:

	Students have opportunities in each lesson to express, clarify, justify, and represent their ideas in both oral and written formats (evidence includes student pages, discussion prompts). These opportunities are explicitly laid out in the lesson plans (in the full teacher guide document). We did not find much explicit evidence for opportunities for students to respond to peer and teacher feedback. The evidence we found includes: • Peer feedback in lesson 9 (p. 113 of teacher guide): "You may want to model for students one positive comment and one constructive comment focused on content." • Page 5 of the Supporting Writing guide, "Students can write interactive journal entries which are shared with their teacher for regular feedback."
	Suggestions for improvement: We suggest that the authors provide more explicit guidance to the teacher on how and when to provide feedback that students can respond to, as well as providing guidance for facilitating students as they provide and respond to feedback from peers.
Criterion C.	**Specific evidence from materials and review team consensus reasoning:** A coherent storyline is provided within the unit. In the teacher guide, each lesson provides a "roadmap" that indicates what has been established in previous lessons, what will be established in this lesson, and what will come next. Most lessons also include statements (under "teacher preparation") about what knowledge students are likely to bring with them, either from previous lessons or from previous grades. This is mostly focused on content knowledge. Explicit information is provided to identify prior student learning for content (PE/DCI), but not for crosscutting concepts and practices. In addition, no information is provided on how prior learning related to crosscutting concepts and practices will be built upon.
	Suggestions for improvement: It would be helpful for the "roadmap" to explicitly address all three dimensions for the past and future learning, as well as the current lesson. Specifically, what prior learning should students have related to the practices and crosscutting concepts? More is need to explicitly address all three dimensions.
Criterion D.	**Specific evidence from materials and review team consensus reasoning:** All scientific information, phenomena, and representations appear to be scientifically accurate and grade-appropriate.
	Suggestions for improvement:
Criterion E.	**Specific evidence from materials and review team consensus reasoning:** Most lessons include margin notes titled differentiation. However, the notes are too general. They don't provide explicit guidance to the teacher on specific differentiation strategies. Some examples include: • p. 46 of teacher guide: "Refer to the Notice and Wonderings chart from lesson 2 if students struggle to recall the investigation." • p. 47 of teacher guide: "You may want to have another Science Meeting at the Carpet at this point, where you have students discuss what they observed. Help students identify what structures look similar between the bean and the kernel. Connect this to previous learning by saying that both the corn kernel and bean are considered seeds. Ask students about what they know about seeds and help them to generate more questions about seeds.

	Students could investigate these further in lesson 9, when they design their own investigations." • p. 39 explains that some students may be able to use evidence in their exit slip, but directs the teachers that some students might need more support. However, it doesn't list specific support strategies. There is no evidence of explicit additional supports for English learners, special needs students, or struggling readers and writers (e.g., only one set of student pages are provided--no scaffolded versions are available). We found no evidence of extensions for students with high interest or those who have already met the PEs. "Writing extensions" are not opportunities to extend the learning beyond the typical lesson/unit, they are simply opportunities for weaving in writing.
	Suggestions for improvement: The authors should provide more detailed differentiation suggestions. What specific strategies can teachers use for ELL students, special education students? Additionally, providing suggestions for additional learning opportunities for students meeting/exceeding expectations or highly interested would be useful. Differentiated student sheets (or suggestions for how to modify them) should be provided (e.g., more or less scaffolding, more visual cues). Explicit suggestions for how to alter/differentiate instruction based on formative assessment outcomes are needed. Modify formative assessments (including whole class discussions) so that more opportunities are provided to assess individual students in order to design appropriate differentiation.
Criterion F.	**Specific evidence from materials and review team consensus reasoning:** At the end of each lesson, students are routinely adding new questions, reflecting on their learning and thinking about what to do in the next lesson (that lead to the next lesson). At the beginning of each lesson, students routinely reflect on what they have learned so far. • For example, lesson 7 step 4 asks students "what of our remaining questions do we most want to answer?" Step 7 says "what should we make sure to do in our next science class? What do we need to investigate next time we meet for science?" Throughout the lessons, students are making meaning (documented in class charts) and engaging in argument from evidence. For example, in Lesson 4(a), "We argue from evidence that:.... We think maybe the water is going into the corn. We do not all agree on which part of this thing stuff is growing from." Practices, crosscutting concepts, and DCIs are explicitly marked in the lessons (color coded) so that the teacher can make clear connections for students.
	Suggestions for improvement:
C	**Specific evidence from materials and review team consensus reasoning:**

	Students engage in multiple practices over the course of the unit. They become increasingly responsible for making sense of phenomena. By lesson 9, students have to independently plan and carry-out an investigation and construct an explanation based on their findings. Supports are adjusted as the lessons progress through gradual release as specified in the Supporting Writing guidance and the teacher document.
	Suggestions for improvement:

Category III. Monitoring NGSS Student Progress

		Evidence of Quality?			
		None	Inadequate	Adequate	Extensive
Unit Criteria	A. **Monitoring 3D student performances**: Elicits direct, observable evidence of three-dimensional learning; students are using practices with core ideas and crosscutting concepts to make sense of phenomena and/or to design solutions.			X	
	B. **Formative:** Embeds formative assessment processes throughout that evaluate student learning to inform instruction.			X	
	C. **Scoring guidance**: Includes aligned rubrics and scoring guidelines that provide guidance for interpreting student performance along the three dimensions to support teachers in (a) planning instruction and (b) providing ongoing feedback to students.		X		
	D. **Unbiased tasks/items**: Assesses student proficiency using methods, vocabulary, representations, and examples that are accessible and unbiased for all students.		X		
	E. **Coherent Assessment system:** Includes pre-, formative, summative, and self-assessment measures that assess three-dimensional learning.	X			
	F. **Opportunity to learn**: Provides multiple opportunities for students to demonstrate performance of practices connected with their understanding of disciplinary core ideas and crosscutting concepts and receive feedback		X		

Category III Rating: **0** Adequate evidence for no more than two criteria in the category

Criterion A.

Specific evidence from materials and review team consensus reasoning:

Direct and observable evidence of components of the three dimensions were observed:
L1: Students use SEP-Ask Question to begin this set of lessons by using their curiosity to learn about the harvest corn.
Calling the use of "parts" the DCI, but they are not necessarily asking questions about the parts at this point - the corn as a whole is what they are talking about…

L2: Students were asking about patterns after dissection of the corn. Used "I Notice, I Wonder" Chart - building consensus to develop an investigation.
L3: Students use SEP- Analyze data after conducting an investigation on getting the corn wet.
L4: Support for Analyzing data collected from investigation.
(these continued throughout lesson sequence in similar fashion.)

Students use observations, "I notice, I wonder" charts frequently.

Phenomena sometimes felt contrived. Focus of grade level standard didn't occur until much later in sequence. A lot of emphasis was placed on structure and function of plants which is a first grade standard, so students were not directly engaged in grade level DCI at all times.

Lesson 9 is a quality example of a summative, three dimensional performance task that pulls together what the students have learned over the course of the unit and it is designed to elicit student responses that would make their learning across all three dimensions visible. This example is the primary reason for earning the "adequate" rating.

Suggestions for improvement:

This type of 3D learning/tasks was not consistent throughout the lessons. The color coding suggests these lessons are 3-D, but the setup of the lesson, makes the elements pieces of the lesson versus a 3-D lesson where all pieces work together to build understanding.

Students were involved in class investigations that were directed by the teacher and not guided by student inquiry. Investigations were developed at the teacher level, but students were not

	actively engaged in designing authentic inquiry regarding the phenomena. Students were not given opportunity to plan and conduct investigations until the final lessons - so more opportunity earlier in the instructional would help develop this practice.
Criterion B.	**Specific evidence from materials and review team consensus reasoning:** Formative assessment processes are embedded to make changes in student thinking visible when the teacher uses exit tickets, group discussions, and small group discussions, however there is a lack of teacher guidance on how to use the "Formative Assessment Opportunities" in the teacher edition to help guide future instruction. Formative process is actually embedded more in the other callouts in the right margin—within the "strategies for this Building Understanding Discussion," the "Differentiation Strategies and Alternate Activities," and "Additional Guidance" sections. Not in all of them, but in enough that, along with clarifying "Alternate Student Conceptions" in the Teacher Background section there was "adequate" support for teachers adjusting instruction based on student performance. Formative "opportunities" are more consistent and robust in the earlier portion of the lessons. L2 - Exit Ticket "Do you think the corn is real or not? Explain with 2 reasons" (higher level thinking - requires justification.) L4b - Exit Ticket "What could the function of the kernel be & why? What could the function of the cob be & why?" (higher level thinking - requires them to analyze what the function may be and justify why.) L6 - Exit Ticket "What did we do with the corn today? What are we going to try to figure out?" (lower level recall and summary). L7 - thumbs up, thumbs down poll regarding if you think the corn is alive and if you think the corn is a plant. (no higher level thinking required.) Not all of the formative suggestions would help inform future instruction. Example: L6 - Exit Ticket "What did we do with the corn today? What are we going to try to figure out?" This gives a summary of what was done in class.
	Suggestions for improvement: Formative assessments were not directly connected to DCI/PE with if plants need sunlight and water to grow, they all revolved around the corn and specific questions about structure and function. There is a lack of guidance for entrance/exit tickets for use of them for the teacher. Formative assessments need to inform future learning. Ensure each opportunity does this. More consistency in rigor of the formative assessments is suggested. Students should be given more opportunity to "make sense of their learning" and asked to provide these ideas as exit tickets or specific formative assessments.
Criterion C.	**Specific evidence from materials and review team consensus reasoning:** Guidance for interpreting student performance is minimal and unclear. There are no rubrics associated with this set of lessons. L6b - progress note "students are making adequate progress if they make logical jumps to experiments based on evidence they have already collected about plant growth during this unit" • What does this mean?

	L9c - mastery note "students have demonstrated mastery of the PE when they have constructed an explanation that uses what they learned from all of the experiments in this unit to answer questions 4 and 5" (where are these questions located?) • This is the first time in the lesson they are asked to construct an explanation outside of whole class writings - this seems that it would be daunting to consider they could demonstrate mastery of the PE by writing one explanation on their own. Everything to this point was whole class and leaves little opportunity to scaffold or support individual learning needs. Suggestions for feedback to students was generic and consisted of "listen for these responses." A lot of whole group discussion was conducted, which may not allow for all students to seek and receive meaningful feedback in their learning process.
	Suggestions for improvement: A rubric for the final investigation would be helpful. It would allow teachers and students an understanding of expected outcomes. More scoring/progress monitoring needs to occur throughout lesson. It would be difficult to report progress of students learning in this lesson sequence beyond "participates in class discussion or class investigations." Provide criteria to score student understanding throughout the lesson sequence.
Criterion D.	**Specific evidence from materials and review team consensus reasoning:** Assessment methods are not accessible to all because only a select number of assessment methods are used. Most are group discussions or exit tickets. Unless the teacher was ensuring every student was given a chance to speak in the group discussions, not all students are being gauged in the assessment. Lesson/storyline is heavy with class discussion and whole group work until the final culminating investigation. Whole group discussions and class work do not allow for a complete picture of each student's understanding and performance of the SEPs, DCI, or CCCs. Whole group discussions are not conducive to all students, especially ELL students who are not as adept in the language. Most of the demonstrations of performance consisted of recording observations or use of "I notice, I wonder" charts. These are good scaffolds for students who need language support, as they could draw/sketch observations, but there is not much variety beyond this style task. Much of the writing was done as shared writing experiences. While this is a nice scaffold, a scaffold is temporary and should be used as needed - not as the norm. By 2nd grade, students should be doing more independent writing and less shared writing. Bias is questionable - as the lessons feel contrived and controlled... the teacher must direct the discussion down a certain path or they won't lead into the next lesson appropriately. Use of the harvest corn as the phenomena may be appropriate for students in certain regions of the country but not for all students.
	Suggestions for improvement: Provide suggestions for alternate methods of addressing the phenomenon - what else could you use beyond harvest corn? Examples of multimedia resources that could help support. The developers might want to include teacher guidance for protocol to get full participation in class discussions.

	Differentiation support was lacking. There should be a variety of methods to engage students in their learning beyond the "I notice, I wonder" chart.
Criterion E.	**Specific evidence from materials and review team consensus reasoning:** No pre-assessment of what students know/don't know about these ideas. In L2 it states "we already know from 1st grade that…" but how does a teacher know if all the students really know and understand the concept of "organisms having external parts." Formative assessment suggestions were given throughout the lessons, but they were not consistent and didn't always inform future instruction or provide measures of 3-D learning. A culminating-style investigation is designed as the last lesson sequence (L9). However, it is never mentioned as such, nor is there guidance as to it being summative-style until the end lesson title "What has our class figured out from all of our experiments?" There was no guidance as to self-assessment for students. Students are not being directed to self-assess throughout the lessons either.
	Suggestions for improvement: There is not an explicit system of assessment. Add some form of pre-assessment to the unit. Teachers need to know what students "think they know," what misconceptions may be lurking, and if there are areas of emphasis that will need to be addressed differently with the needs of the students. Formative assessment "suggestions" or "opportunities" were not all designed to inform future instruction and many were not more than simple recall or summary of daily work. It would be difficult for teachers to know where student misconceptions or gaps were and there is not much guidance as to how to fill those gaps. If the class investigations are the summative assessment, this should be noted. If the Student Sheet 9 was intended for this purpose, then that should be noted. Guidance should be given to teachers about expectations for final investigations. Many of the formative assessments felt more like student self-assessment checks. Students could be given more clarity on their learning criteria and goals and asked to score themselves on this throughout the lesson.
Criterion F.	**Specific evidence from materials and review team consensus reasoning:** In each lesson students are given a chance to demonstrate what they know, but the teacher does not really give feedback which severely limits how much students would learn because they are not being probed to think deeper or guided to gain more knowledge. The lessons seemed to be repetitive in nature, and students weren't given a variety of ways to demonstrate their performance. Most of the learning was in whole group and through class discussion, but were ALL students truly given multiple opportunities with practices, DCI, and CCCs?
	Suggestions for improvement:

	More teaching strategies need to be added in the lessons to give all students a chance to demonstrate their understanding and the teacher should continuously be giving feedback to all students. Use of a variety of tools beyond "I notice, I wonder" chart. 2nd graders should be moving into more independent style work and should be crafting their own claims and evidence statements rather than everything being done whole group. This lesson (series of lessons) feels contrived and very controlled. The teacher must ensure that specific questions/wonderings are brought up to set up the following lesson. Students should drive the learning or inquiry process.

Summary Comments

It was not difficult to find evidence in this unit for the criteria in the EQuIP Rubric for Science—student learning is driven by making sense of phenomena and the storyline is tied together in a way that would make sense to teachers, but it also provides support for teachers to facilitate it in a way that it makes sense to students as well. This was particularly evident in the review of *Category I: NGSS 3D Design*. There was an abundance of evidence for each criterion, with only one criterion not being identified as having extensive evidence of quality

Though aspects of the unit were strong, there are also some areas that need revision and those trying out this unit in their classroom should pay particular attention to the suggestions for improvement in categories II and III. In *Category II: NGSS Instructional Supports*, there was insufficient evidence of quality for two criteria—*II.C Building Progressions* and *II.E Differentiated Instruction*. Though the three dimensions were woven throughout the learning and integrated in students making sense of phenomena, it was not clear from the materials what prior learning was expected for the three dimensions, how this was built upon across the unit, and what might be remaining for students to learn from the targeted performance expectations (or what other learning might be good to happen next if the entirety of the targeted performance expectations are thought to have been addressed). And, though there were specific examples given for differentiated instruction, they were not frequent or robust enough to support all learners. In Category III. Monitoring NGSS Student Progress, only two criteria were rated as having "adequate" evidence of quality. Though this results in an overall rating of "0" for this category and there are a number of issues outlined in the feedback above that need to be addressed, a close look at this feedback will reveal that this is a zero that's very close to a "1" and not all that far from a "2."

It should be noted that the sum of points from the individual categories is "5" and the overall rating guide recommends that a unit with this score would receive an R-Revision Needed ranking, but the overall rating guide also explicitly allows for flexibility in this designation if the reviewers determine that the overall evidence warrants a shift. In this case, the reviewers have indeed decided there is sufficient evidence to award this unit a higher rating than is suggested by the rating guide—E/I Example of High Quality NGSS Design, if Improved.

Unit Rating Scale for Category I (Criteria A–F):

3: At least adequate evidence for all of the unit criteria in the category; extensive evidence for criteria A–C
2: At least some evidence for all unit criteria in Category I (A–F)**;** adequate evidence for criteria A–C
1: Adequate evidence for some criteria in Category I, but inadequate/no evidence for at least one criterion A–C
0: Inadequate (or no) evidence to meet any criteria in Category I (A–F)

***Unit* rating scale for Category II (Criteria A-G):**

3: At least adequate evidence for all criteria in the category; extensive evidence for at least two criteria
2: Some evidence for all criteria in the category and adequate evidence for at least five criteria, including A

1: Adequate evidence for at least three criteria in the category

0: Adequate evidence for no more than two criteria in the category

Unit Rating scale for Category III (Criteria A–F):

3: At least adequate evidence for all criteria in the category; extensive evidence for at least one criterion

2: Some evidence for all criteria in the category and adequate evidence for at least five criteria, including A

1: Adequate evidence for at least three criteria in the category

0: Adequate evidence for no more than two criteria in the category

Overall Rating:

E: Example of high quality NGSS design—High quality design for the NGSS across all three categories of the rubric; a lesson or unit with this rating will still need adjustments for a specific classroom, but the support is there to make this possible; exemplifies most criteria across Categories I, II, & III of the rubric. (total score ~8–9)

E/I: Example of high quality NGSS design if Improved—Adequate design for the NGSS, but would benefit from some improvement in one or more categories; most criteria have at least adequate evidence (total score ~6–7)

R: Revision needed—Partially designed for the NGSS, but needs significant revision in one or more categories (total ~3–5)

N: Not ready to review—Not designed for the NGSS; does not meet criteria (total 0–2)