Criteria 1: Authentic Learning Experiences through the use of relevant phenomena Students will engage in science in an authentic manner through the use of relevant phenomena. **Expanding Implementation Implementation Beginning Implementation** No Implementation • Students directly experience phenomena and • Students provided with direct experience with • Phenomena used only as a hook Isolated topic-based lessons • Authentic learning happens by chance have teacher support to build understanding phenomena but lack of teacher support to Reading about science topics across three dimensions build understanding across three dimensions • Read about phenomena with no application Content is disconnected from student interests • Phenomena connected to identity/interests; Phenomena loosely connected to identity; • Lab investigations present but mainly as or identities students make connections with peers teacher helps make connections confirmation Absence of science investigations Primarily reading and answering worksheet • Figuring out of DCIs across domains • Figuring out of DCIs focused in one domain · Evidence building occurs across activities and • Engage in practices to gather evidence about auestions investigations explanation of phenomena

Criteria 2: Three-dimensional learning
Students will use SEPs to build their understanding and apply their learning across disciplines to understand the relevance of concepts.

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Expanding Implementation	Implementation	Beginning Implementation	No Implementation		
Framing of learning with CCCs is clear and students connect CCCs to more than one science discipline Students engage in grade level appropriate SEPs without teacher prompting Integrated use of three dimensions at element level Classroom assessments align to, look like, and are part of classroom instruction Formative assessments are utilized by the teacher in making instructional decisions and students use peer and teacher feedback to revise or extend their explanations/models/arguments	 Framing of learning with CCCs is clear to teachers but not students Use of SEPs is grade level appropriate but teacher directed Integrated use of three dimensions in activities Assessments integrated three dimensions but prioritize DCIs Formative assessments identify student misconceptions and progress in more than one dimension with a plan to use data to drive instruction 	 Framing of learning includes CCCs but with loose connections SEPs present but not grade level appropriate DCls, CCCs, and SEPs present but not integrated Two of three dimensions present in activity Use of one- or two-dimensional assessments that are isolated from instruction Additional assessments such as vocabulary quizzes are utilized during instruction, but the results are not used to inform instruction or learning. Formative assessments focus only on DCIs or misconceptions without plan to use data 	 Framing of learning is absent of cross-cutting concepts Emphasis on scientific method or cookbook labs Activities centered on facts; content is an end in itself Assessments focused on recall of DCIs only Absence of formative assessments 		
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Criteria 3: Coherence

Students will build on concepts learned in prior years as well as building knowledge and skills throughout each unit.

Expanding Implementation	Implementation	Beginning Implementation	No Implementation
Teacher plans with all three dimensions and actively connects learning to students lives Unit features anchoring or lesson level phenomena that allow students to figure out different aspects of the natural event and connect current and prior learning When asked, students can identify how what they are learning on a given day was related to previous learning and/or how it will guide future learning Objectives are three-dimensional learning performances and are coordinated to build understanding within and across dimensions Driving question(s) are developed by teacher and students and subsequent lesson-level questions build coherently to allow students to make sense of a phenomenon while building towards performance expectations	 Evidence that teacher is aware of all three dimensions Teacher connects current learning to past concepts but bring in students' life experiences Unit features anchoring or lesson level phenomena but students do not figure out different aspects of the natural event or do not need to tie current learning with prior learning Unit is coherent on paper but students struggle to articulate connections between activities Objectives are three-dimensional learning performances that are designed to build student understanding Driving question(s) are developed by teacher and students but teacher selects which ones are investigated in a way that doesn't build conceptual understanding 	 Students engage in science activities/laboratory experiences that relate to a big idea but students are not able to articulate that relationship Unit organized conceptually around topics or themes but not phenomena Objectives are one or two-dimensional and typically focus mastery of content or skills but are not all three dimensions Driving question(s) are teacher selected and not complex enough to require building understanding over the course of several investigations 	 around a science topic or textbook chapter Evidence that each unit repeats same foundational skills or knowledge Learning organized by content,
			

Criteria 4: Appropriate integration of ELA/literacy and mathematics While engaging in learning, students develop disciplinary literacy and mathematics practices in order to make sense of phenomena.

Expanding Implementation	Implementation	Beginning Implementation	No Implementation
High frequency of student-student discourse that promotes sensemaking and uses appropriate disciplinary language/vocabulary Students use journals/notebooks in ways that promote sensemaking and use self, peer or teacher feedback to revise their understanding Students use mathematical modeling and graphing of data in ways which encourage conceptual understanding, vocabulary development, and mathematical or computational thinking Students look to a variety of expert resources to provide evidence for their scientific claims, including resources that are not always identified by the teacher	Discourse pattern is structured whole-class discussions and small group work in a way that allows students to negotiate understanding and/or to revise their explanations/models/arguments Little to no use of disciplinary vocabulary present in discourse Journals/notebooks are used to promote sensemaking but there is no opportunity for meaningful peer or teacher feedback Students use scientific formulas, make calculations, and appropriately represent and analyze data to deepen their conceptual understanding Student use a variety of teacher-provided high-quality text sources in meaningful ways	Discourse pattern is structured whole-class discussions and small group work but conversations do not allows for negotiating understanding or providing peer feedback Journals/notebooks are used to record and organize information and build on these ideas throughout their learning Students use mathematical calculations, graph their data and make sense of various displays of data but their analysis does not advance conceptual understanding Students utilize teacher-provided expert texts to answer questions	information/facts to be learned through disconnected practice or memorization • Discourse pattern is only student to teacher,
			

