



PUBLISHER'S RESPONSE

EdReports has identified many strengths of *Issues and Science*, resulting in positive scores that are just short of the narrow range set for the distinction, "Meets Expectations." *Issues and Science* is built on a strong foundation of research and classroom testing with diverse students and teachers, followed by significant redesign to emphasize all elements of the NGSS, such as three-dimensional learning, the importance of phenomena and problems, and the role of student thinking and sensemaking. We feel that the high score is reflective of those efforts and of a quality instructional program. That said, there are a few specific areas where we think the rubric is too narrow and does not capture the intent of the *Framework* and NGSS.

The EdReports review is *one* way to measure aspects of alignment and is most valuable when used alongside localized processes to provide specific information that would otherwise be too time consuming to attain. Through discussions in adoption committees and test use in the classroom, schools and districts may find areas where their priorities differ from those identified by EdReports. Curriculum developers too may prioritize elements differently—for example, *Issues and Science* is intentionally designed to have flexible unit organization to meet local scope and sequencing needs. This design cost the program two points in the EdReports review.

The *Framework for K-12 Science Education* and the NGSS are complex and represent the efforts of hundreds of science educators and years of effort. Rather than rely simply on the overall scores, we trust that schools and districts will take advantage of the detailed evidence presented by the full EdReports review to learn more about the *Issues and Science* program.

EdReports review identifies strengths of *Issues and Science*

Three-dimensionality

EdReports states that the SEPUP/Lab-Aids middle school curriculum is “designed to integrate three dimensions into student learning opportunities,” “consistently supports meaningful student sensemaking with the three dimensions in nearly all learning sequences,” and is “designed to elicit direct, observable evidence for three-dimensional learning by providing three-dimensional learning objectives at the activity level and building towards the performance expectations of the larger unit.” (Criterion 1a-c) Additionally, *Issues and Science* meets all grade-band DCIs, and presents content, SEPs, and CCCs in a way that is appropriate and scientifically accurate. (Criterion 2b-g)

Assessment

Issues and Science is designed to elicit direct, observable evidence of three-dimensional learning and performance expectations (PEs). “Materials consistently provide learning objectives at the activity level that build towards the PEs for the larger unit. Activities incorporate sequences of formative assessment that build toward three-dimensions and are structured and supported to assist teachers in the instructional process.” (Criterion 1c) Additionally, the assessment system provides scoring guides that can be used to track students’ progress over the year, or three middle school years, and serve as evidence of increasing competency of student work.

Direct presentation of phenomena and problems

The EdReports review found that *Issues and Science* “presents phenomena and problems to students as directly as possible.” Students encounter these mainly through hands-on experiences, discussion, teacher demonstration, maps, data, videos, or some combination thereof. Cited examples include improving the design of a chemical battery, investigating how individuals with a sickle cell mutation can be resistant to malaria, and creating a device that will roll a gyrosphere to a moon base and rescue a stranded astronaut.

Where did we lose points?

1D Phenomena and/or problems are connected to grade-band Disciplinary Core Ideas.

In the analysis for indicator 1d, partial credit was awarded ($\frac{1}{2}$) as reviewers found that “phenomena and problems are found across the materials in life science, physical science, and earth and space science,” but that full credit was not given as the materials contained multiple examples of problems that only connected to DCI for Engineering, Technology, and Applications of Science (ETS). This interpretation ignores that the NGSS includes two distinct kinds of engineering PEs: those integrated into the life, earth, and physical science PEs, and those that stand alone under ETS, with ETS DCIs only. Based on their presentation as Disciplinary Core Ideas, *the engineering DCIs are the content for the engineering PEs*. Therefore, it is contrary to the expectations of the NGSS to require that activities based on engineering PEs should also incorporate life, earth, or physical science content.



1F Phenomena and/or problems drive individual lessons or activities using key elements of all three dimensions.

A zero in the EdReports' analysis for indicator 1F reflects a limitation of the EdReports rubric for this category through its a) narrow interpretation of what constitutes a phenomenon, and b) inappropriate emphasis on "individual lessons," rather than lesson *sequences*, as the unit of analysis.

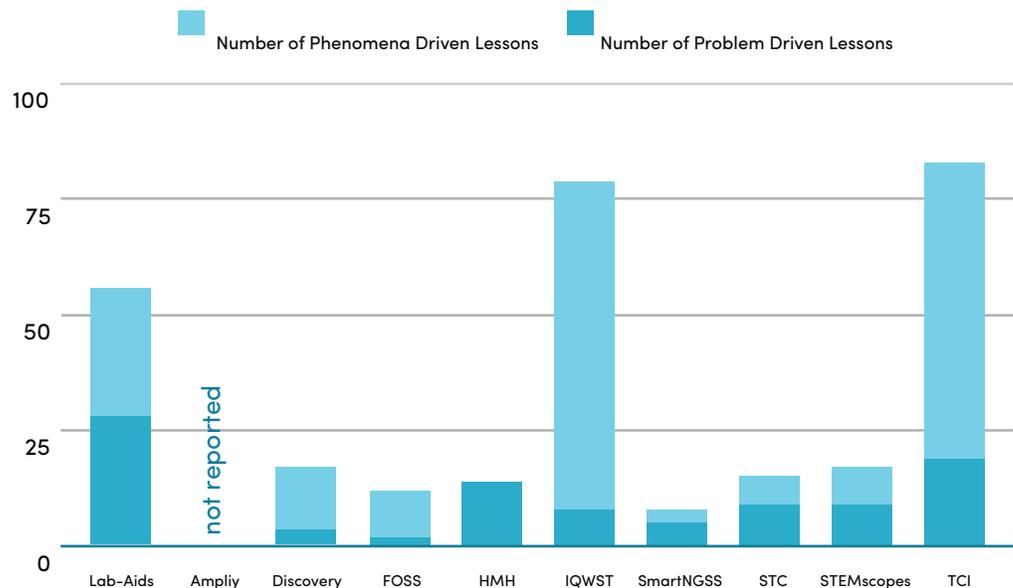
The EdReports analysis suggests an assumption that a new phenomenon should be presented at the beginning of an activity, and must be directly observable by students. In *Issues and Science*, many phenomena are often uncovered by students as they engage in an activity. For example, they might observe a phenomenon as they analyze data, interact with a simulation, or read a case study, and these are all appropriate ways for students to encounter phenomena (Penuel and Bell, 2016).

In addition, "individual lessons" are not an appropriate comparison across curricula, as some instructional materials report 74 total lessons over three years, others average around 100, and one is as low as 17 total "individual lessons" from Grade 6 through Grade 8.

Issues in Science, by contrast, totals 253 "individual lessons" – shorter activities that are easier to manage than a long, multi-part lesson, and organized in a sequence to explore a phenomenon. To meet EdReports' criterion based on individual lessons, *Issues and Science* would need to

have 51 lessons based on phenomena to reach even 20% activities, while a program with 100 lessons would need to have only 20 lessons based on phenomena. In fact, the figure above shows that the number of phenomena- and problem-driven lessons in *Issues and Science* is greater than nearly every other program for which EdReports presents this data and, as noted by EdReports for Criterion 1I, phenomena are often explored over multiple lessons of a sequence.

Phenomena and Problems Across Programs as Identified by EdReports



1H Materials intentionally leverage students' prior knowledge and experiences related to phenomena or problems.

We are puzzled by EdReports' statement for indicator 1H that "the materials do not elicit and leverage student prior knowledge and experience related to phenomena and problems." We feel that this is misleading. In our current revisions, to be released summer 2020, we also recognized the need to include additional opportunities to elicit and leverage student's prior knowledge and experiences. That said, *Issues and Science* already elicits and leverages students' prior knowledge and experiences in very intentional and purposeful ways throughout the series. At the start of every unit, through the Driving Questions Board, a unit issue is first presented to students and they are explicitly asked to explore the connection between the unit issue, the anchoring phenomenon, and their prior knowledge and experiences in their daily lives. This sets the tone for the entire learning sequence where students' prior knowledge is revisited and leveraged at meaningful instances that contribute to and develop student sensemaking about the unit issue and phenomena. EdReports failed to acknowledge these examples and a number of other instances where the program elicits and leverages students' prior knowledge and experiences. By the standards of EdReports' own evidence guide and rubric, we feel strongly that our program deserves partial credit on this indicator.

2A Materials are designed for students to build and connect their knowledge and use of the three dimensions across the series.

The EdReports' analysis for indicator 2A.1 penalizes the flexibility of the program's scope and sequence by stating that students using *Issues and Science* will not understand how the materials connect the dimensions from unit to unit. It is an intentional design choice to exclude any reference to other units in the student materials so that districts and teachers using the program nationally are able to mix and match the order per local standards. The *Teacher Edition* facilitates unit connections by calling out where one unit might reference another, and we are confident that teachers are able to make such connections.

Learn more about *Issues and Science*
at lab-aids.com/edreports