Publisher response

The Lawrence Hall of Science and Amplify teams deeply appreciate the time and effort that went into the review of Amplify Science for grades K–5 and for the opportunity it presents to improve our program.

We have already made many of the changes suggested by this review. Because the teachers' materials are digital, the updates are already live in the version of Amplify Science that customers are currently using. We are making other updates based on the remaining feedback and will soon re-submit.

Below is our detailed response to specific feedback:

EdReports' feedback focused on formative assessment (Indicator 1B) and phenomena (Indicator 1F). These resulted in a "yellow" rating for Gateway 1. In the current draft of the K–5 program, 1B and 1F follow the same approach we used in Amplify Science 6–8 for which we were awarded full points and a "green" rating last year.

Indicator 1B - Formative Assessment

Our targeted three-dimensional learning objectives are the NGSS Performance Expectations (PEs) for each grade, and our assessment tasks are consistently designed to reveal students' knowledge and use of the three dimensions to support these objectives. The review may have assumed the targeted learning objectives were the 3-D statements. We are hopeful that ambiguities that led to this confusion have already been addressed in the present edition, in part by offering more clarity in the teacher documentation so that it makes this design principle more clear to teachers.

The Amplify Science Assessment System is based on a comprehensive plan spanning the unit and year, rather than on the individual lesson objectives. We have improved how we communicate this approach to teachers through the following:

- In each unit, there is a 3-D Assessment Objectives document, which identifies the unit's targeted three-dimensional learning objectives. This document lists the focal Performance Expectations for that unit, the related SEPs, DCIs, and CCCs, and the locations of assessment opportunities for each dimension of that 3-D learning objective.
- In every formative and summative assessment, at point of use, we identify the relevant NGSS dimension(s) targeted by that assessment. Formative assessments are also compiled in the unit-level Embedded Formative Assessments document.
- In each unit, in the Assessment System document, we include a table of Assessment Opportunities that provides a unit overview of formative and summative assessments in chronological order, with more detailed information about the assessment types and evaluation guidance.

We are confident this design is aligned to the NGSS and the EdReports criteria, and we are hopeful that the improvements we've made in making this design more self-evident to teachers will satisfy this requirement.

Indicator 1F - Phenomena

The approach to phenomena in Amplify Science follows the NGSS resource, Using Phenomena in NGSS-Designed Lessons and Units: "Not all phenomena need to be used for the same amount of instructional time. Teachers could use an anchoring phenomenon or two as the overall focus for a unit, along with other investigative phenomena along the way as the focus of an instructional sequence or lesson. They may also highlight everyday phenomena that relate investigative or anchoring phenomena to personally experienced situations. A single phenomenon doesn't have to cover an entire unit, and different phenomena will take different amounts of time to figure out."

In Amplify Science, the unit anchor phenomenon is a complex, unit spanning phenomenon connected to the "storyline" of the unit, which in order to figure out, is broken down into smaller sub-phenomena (chapter-level anchor phenomena and investigative phenomena) that drive instruction in the chapters and lessons of the unit—all of this organized and visible to the teacher in each unit's Coherence Flowchart, which we have already made more prominent.

Through students' efforts to figure out the chapter-level anchor phenomena and the investigative phenomena, they build the understandings necessary to apply back to the unit spanning anchor phenomenon and ultimately are able to provide a sophisticated, evidence based causal explanation or argument for that complex unit anchor phenomenon by the end of the unit.

Each phenomenon is introduced in the form of student-facing problems and questions. The anchor phenomenon is introduced as their challenge—the problem they are trying to solve over the course of the unit. The chapter-level anchor phenomena are introduced and formalized as chapter questions. The lesson-level investigative phenomena are introduced as investigation questions which provide additional focus and drive instruction. Unlike "guiding questions" from curricula of the past, which were often topic-focused, our Chapter Questions and Investigation Questions are question versions of phenomena. These questions create a need for new information or insights and drive the lesson experience. Every lesson is grounded in an Investigation Question (i.e. Investigation Phenomenon) and activities in those lessons are focused either on evidence collection, sensemaking, or explaining the phenomenon.

Formalizing the phenomena in the form of a question is quite intentional. A question is an invitation for curiosity, a way to engage students, and provides a lesson-spanning purpose for the student.

After investigating a range of related phenomena within each chapter, students are able to synthesize the more generalizable understanding constructed over multiple activities, and this understanding is formalized through Key Concepts. Often a Key Concept suggests a new phenomenon that leads students to an additional Investigation Question students need to pursue to answer the Chapter Question. At the end of the chapter, students' new understanding is applied back to building an explanation of the unit's anchor phenomenon and leads students to a new Chapter Question or a final explanation.

The Coherence Flowcharts in each unit illustrate to teachers the hierarchy of phenomena, from the unit-level anchor phenomenon to chapter-level anchor phenomena and all the way down to smaller investigative phenomena. They also describe how these phenomena drive instruction at every level by engaging students in gathering evidence, sensemaking, and constructing explanations.

The goal of developing a deep understanding of the unit-level anchor phenomenon provides the motivation that drives investigation throughout the unit. Continuous, coherent, and explicit connections are made between that goal and the work students are doing to explain the smaller sub-phenomena at the chapter and lesson level. The Amplify Science approach, in which investigations of carefully selected sub phenomena are integrated into a coherent sequence, driven by the need to explain the anchor phenomenon, is a powerful, phenomenon-focused approach that aligns with the vision of the NGSS.