

In Summary: Building Upon a Tradition of Quality

For more than 175 years, Houghton Mifflin Harcourt has been committed to partnering with expert authors to create content of the highest quality that is both pedagogically sound and easy to implement in a variety of classroom situations. In addition, we are committed to continuously seeking out feedback to improve our solutions year after year.

As such, our authorship team and our internal teams are disappointed that the results of the EdReports review of *HMH Science Dimensions*[®] do not reflect the praise *HMH Science Dimensions* has received from our customers and from other reviewers and do not reflect the demonstrable impact it is already having in closing achievement gaps in classrooms around the nation.

Relying Upon the Writers of the NGSS

Our development of this program began with several years of close study of the NGSS and the instructional shifts required by them. In the midst of many conflicting interpretations of the “true spirit of the NGSS,” HMH decided to rely upon the ultimate authority to be certain of our approach.

We engaged in deep collaboration with authors, consultants, and reviewers who were key thinkers on the NGSS. These opinion leaders include three of the 40-member NGSS writing team who actually drafted the standards:

- Dr. Cary Sneider, Portland State University, formerly of Museum of Science in Boston and Lawrence Hall of Science at the University of California
- Bernadine Okoro, formerly of NSF Directorate of Engineering and DC Public Schools
- Peter McLaren, formerly of Achieve, Inc., Rhode Island Department of Education, and East Greenwich (RI) Public Schools

Details of some of the research that was incorporated into the development and planning of *HMH Science Dimensions*[®] is available from HMH upon request.

Breaking New Ground in Science Education

Through the guidance of the research base and the authors and reviewers, HMH made significant departures from the typical textbook approach of delivering facts to be remembered for low-level recall-based assessments. Here are a few of the unique innovations in *HMH Science Dimensions*[®]:

- Deeply embedded phenomena in every lesson that are repeatedly connected to new learning throughout the lesson to maintain engagement throughout
- Constant practice and application of all three dimensions of science education that consistently require students to make claims, gather evidence that supports or doesn’t support their claim, and apply reasoning to explain why or why not
- Thorough integration of opportunities for students to work with the Engineering Practices in every unit

- Active learning strategies that promote student ownership in learning by creating an environment in which students explore through hands-on activities, videos, photos, illustrations, diagrams, graphs, and charts rather than being passive learners absorbing “correct” answers
- Frequent use of collaboration strategies to build stronger social-emotional learning (SEL) skills through working with others toward shared goals
- Opportunities for students to make choices to drive learning, such as in the Unit Project at the start of the unit, Hands-On Labs within the lessons, the Elaborate portion at the end of a lesson, the Unit Performance Task at the end of a unit, or in the digital interactive You Solve It simulations
- Frequent opportunities for students to interact with the content to check their own understanding; teachers can use these checks for formative assessment to adjust assignments and learning activities
- Emphasis on Performance Tasks, Simulations, and Performance-Based Assessments—rather than just closed-ended tests—as the best summative assessments
- Robust interactive online edition that features real-time feedback for students and allows teachers to create groups for assignments and view student assessment results at a glance
- Just-in-time short Professional Development videos from our authorship team exploring different aspects of NGSS teaching and learning

Proving Effectiveness for ALL Students

A recent study by the Educational Research Institute of America examined the use of *HMH Science Dimensions*® by teachers and students in actual classrooms. These studies have found that students using the program witnessed statistically significant ($p < 0.5$) increases in science skills and knowledge.

These findings remained true for both high-performing and low-performing students. In fact, the increase in the average score of the low-performing students was 16% greater than the score increase of the high-performing students. In other words, the *HMH Science Dimensions*® materials helped narrow the achievement gap between the two groups.

The detailed study is available from HMH upon request.

Exceeding Expectations of Other Reviewers

The innovations in *HMH Science Dimensions*® have been hailed both in formal reviews and by individual teachers:

- An independent review using the Educators Evaluating the Quality of Instructional Products for Science (EQuIP Science) Rubric rated *HMH Science Dimensions*® as “an example of a high-quality NGSS design.”
- The Education Department of New Mexico rated the program as “highly aligned to NGSS.”
- A Science Supervisor in Maryland had this to say: “This is exactly what we need . . . it’s clear that you guys have done your homework on NGSS and the others haven’t. This is more suited to NGSS than anything else, in terms of something that teachers can really use to move to an NGSS approach to science. This will help our teachers make this transition, and that will truly prepare our students for the future!”
- A science supervisor in Kansas said this: “The teachers REALLY like it. We are doing more hands-on than they’ve ever done. It’s very, very good!”
- A pilot teacher in Michigan said, “We’re loving *HMH Science Dimensions*®. Our students are super engaged!”

And Consistently Striving for Even Greater Excellence...

The *HMH Science Dimensions*® program will be improved and adjusted every year, in order to make sure we are doing the best we possibly can for science learners everywhere. We will be taking all the points raised in the review, combining them with feedback from users and other reviewers, and using this information to drive improvements in subsequent versions and editions of the program.