

# Proven to work

The efficacy and impact of Amplify Science



# Creating the critical thinkers of tomorrow

For students to navigate and play an active role in today's complex world, they'll need to draw upon the practices of science and leverage strong critical thinking and reasoning skills. Science instruction must be real-world relevant and replace rote memorization with learning experiences that are phenomena-based, literacy-rich, and interactive.

Developed by the science curriculum experts at the University of California, Berkeley's Lawrence Hall of Science, Amplify Science K–8 was built to address the Next Generation Science Standards (NGSS) and three-dimensional learning. The program's strong research base is grounded in decades of proven effectiveness in science curriculum development. And gold-standard efficacy research across K–8 provides high-quality evidence that Amplify Science has a significant positive impact on student learning. The results are clear:

**Amplify Science works.**

## What is The Lawrence Hall of Science?

The Lawrence is the University of California, Berkeley's public science center—an organization with nearly 50 years of experience of research and development in the field of K–12 science education. With a legacy of creating widely-adopted instructional materials, The Lawrence has a deep understanding of what makes programs effective. Its dedicated researchers, curriculum and assessment specialists, disciplinary experts, former classroom practitioners, and educational innovators create powerful instructional sequences for the next generation of science learners. They aim to establish the next generation of scientific innovators as well as citizens who are skeptical, curious, evidence-based thinkers capable of making decisions that improve their and their communities' lives.



# An instructional approach grounded in research

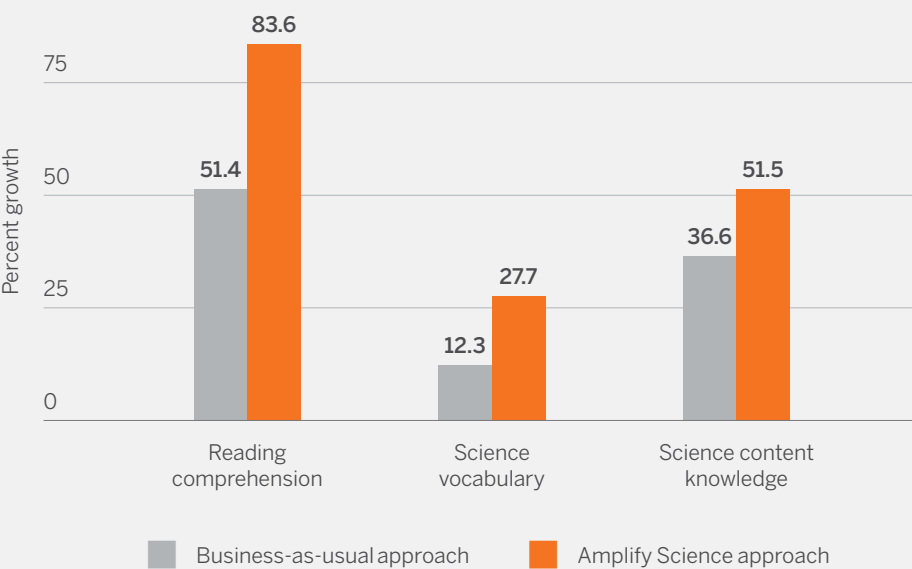
The Amplify Science curriculum is firmly grounded in the latest research around science teaching and learning. Its unique, highly engaging pedagogical model—Do, Talk, Read, Write, Visualize—employs a multimodal instructional approach that provides students with multiple “at bats” and the opportunity for all learners to immerse themselves deeply in science phenomena. This approach has been proven to support and enhance science learning.

## The proven efficacy of our Do, Talk, Read, Write, Visualize approach\*

Students engaging with our Do, Talk, Read, Write approach outperformed their peers on measures of both science and literacy: measures of science conceptual knowledge and science vocabulary. (Cervetti et al, 2012; Duesbury, Werblow, & Twyman, 2011; Wang and Herman, 2005).

Notably, English Language Learners (ELLs) significantly outperformed other ELLs in reading comprehension, science vocabulary, and science content knowledge (Duesbury et al., 2011).

Students achieve more in science and literacy



\* Efficacy research shown based on the Do, Talk, Read, Write approach as tested in the Seeds of Science/Roots of Reading program

Cervetti, G. N., Barber, J., Dorph, R., Pearson, P. D., & Goldschmidt, P. G. (2012). The impact of an integrated approach to science and literacy in elementary school classrooms. *Journal of Research in Science Teaching*, 49(5), 631–658.

Duesbury, L., Werblow, J., & Twyman, T. (2011). The effect of the Seeds of Science/Roots of Reading curriculum (Planets and Moons unit) for developing literacy through science in fifth grade. <https://lawrencehallofscience.org/publications>

Wang, J., & Herman, J. (2005). Evaluation of Seeds of Science/Roots of Reading project: Shoreline Science and Terrarium Investigations. CRESST, Los Angeles, CA. <https://files.eric.ed.gov/fulltext/ED518677.pdf>



# Amplify Science for Elementary School has a significant positive impact on science learning and literacy outcomes.

Supported by the U.S. Department of Education, WestEd's independent gold-standard study examined the efficacy of the Amplify Science Elementary School curriculum in improving science learning and supporting literacy development.

**The study found that Amplify Science had a statistically significant positive impact on student learning compared to “business as usual” programs.**

The study was conducted in 82 first-grade classrooms across three districts. These districts represented a range of diverse student populations, with a total sample of 2,035 students, including multilingual learners (30%) and students who qualified for free or reduced-price lunch (70%). While the study was done at grade 1, the instructional approach is consistent across all grades of Amplify Science.





# Research highlights for Elementary School

## Finding 1

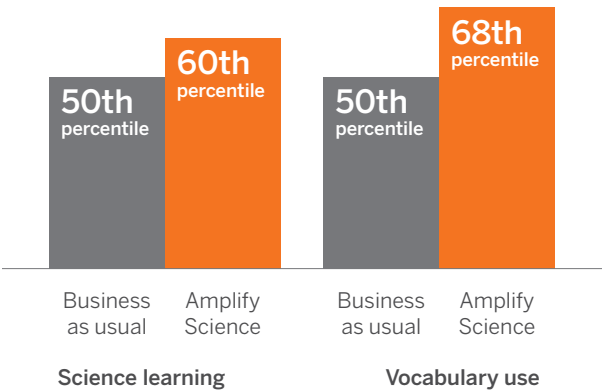
Students in classrooms that used Amplify Science significantly outperformed students in comparison classrooms on NGSS-focused three-dimensional learning and science vocabulary.

The study's results showed that Amplify Science had a statistically significant impact on students' science learning and vocabulary usage.

The impact on science learning corresponds to an effect size of 0.24 (Hedges' g). To put this in perspective, this effect size means that an average student's percentile rank would improve by 10 points (move from the 50th to 60th percentile) if they experienced the Amplify Science curriculum instead of the comparison condition.

The impact on vocabulary use corresponds to an effect size of 0.46, which is equivalent to a percentile rank improvement of 18 points (moving from the 50th percentile to the 68th percentile).

The effect of Amplify Science on an average student's percentile rank



Based on a science assessment aligned with NGSS performance expectations and an assessment focusing on science vocabulary usage.



## Finding 2

While teachers who used Amplify Science spent more time on science, their students performed similarly to students in comparison classrooms on a standardized assessment of reading.

The research indicates that when using an integrated science and literacy curriculum, teachers in the elementary grades can teach considerably more science while advancing the development of students' reading skills.

Reference: Harris, C. J., Feng, M., Murphy, R., & Rutstein, D. W. (2023). Supporting science learning and literacy development together: Initial results from a curriculum study in 1st grade classrooms. WestEd.

# Amplify Science for Middle School has a significant positive impact on student learning and teacher experience.

Supported by the National Science Foundation, WestEd led an independent “gold standard” randomized controlled study that examined the efficacy of the Amplify Science Middle School curriculum in improving seventh graders’ learning in relation to NGSS performance expectations in physical science.\*

The study was conducted in 28 seventh-grade classrooms across three districts. The districts in the study were of varying size and served diverse populations that included multilingual learners and students who qualify for free or reduced-price lunch. While the study was done at grade 7 and focused on physical science, the instructional approach is consistent across all grades and domains of Amplify Science.



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\* Materials used by the comparison group included a redesigned NGSS curriculum; an open-source, project-based curriculum; an adopted textbook; and district-created resources.

## Research highlights for Middle School

### Finding 1

**Students using the Amplify Science Middle School curriculum scored 7.3 percent higher on a post-test assessment than students in the control group.**

Results were similar across diverse student groups, as well as for students with different levels of prior achievement.

Students using the Amplify Science Middle School curriculum scored higher on post-test assessments by

**7.3%**

**Using Amplify Science curriculum materials would move an average student's percentile rank up by**

**14%**

The impact on science learning was statistically significant and corresponds to an effect size of 0.36 (Hedges' g). This effect size means that an average student's percentile rank would improve by 14 points (move from the 50th to 64th percentile) if they experienced the Amplify Science curriculum instead of 'business as usual' instruction.

### Finding 2

**Teachers had a positive experience with Amplify Science**, with an overwhelming majority reporting that their students benefited from the Amplify Science curriculum materials and that the curriculum supported them in engaging students in scientific discourse.

**88%**

**of teachers reported that Amplify Science supported them in engaging students in science discourse**

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Reference: Harris, C. J., et al (2022). Curriculum materials designed for the Next Generation Science Standards show promise: Initial results from a randomized controlled trial in middle schools. WestEd.



# Amplify Science is all green on EdReports across K–8.

Amplify Science was evaluated by EdReports, an independent K–12 curriculum review organization, and received an all-green rating (“meets expectations”) across all three of its gateways: Alignment to the NGSS, Coherence and Scope, and Usability.

Learn more about our all-green rating at [amplify.com/scienceedreports](https://amplify.com/scienceedreports).

Gateway	K	1	2	3	4	5	6	7	8
Designed for the NGSS	●	●	●	●	●	●	●	●	●
Coherence & Scope	●	●	●	●	●	●	●	●	●
Usability	●	●	●	●	●	●	●	●	●

Read our efficacy reports at [amplify.com/amplify-science-research](https://amplify.com/amplify-science-research).