The Lawrence Hall of Science
UNIVERSITY OF CALIFORNIA, BERKELEY

ASCEND K–5
Accelerating K-5 Science Education through Networks and Design

Evidence Brief: July 2025

Reclaiming Time for Elementary Science to Elevate Achievement Across Subjects

Summary

On average, elementary school students receive only about 20 minutes of science instruction per day, the lowest level since 1988 (Blank, 2013; Davis & Haverly, 2024). Forty-one percent of K-2 teachers report that they do not teach science every week (Plumley, 2019; Trygstad et al., 2013). This is far below the widely accepted benchmark of 30 to 60 minutes per day (National Science Teachers Association, 2014) and the sustained instructional time required for students to acquire the knowledge of scientific ideas, practices, and crosscutting concepts, needed to make sense of phenomena and design solutions to engineering problems. Early exposure to science ideas and practices predicts higher science achievement in later grades (Curran & Kitchin, 2019). Teachers identify limited instructional time caused by competing demands, particularly the increasing accountability for mathematics and English language arts (ELA) performance, along with insufficient professional learning and preparation, as major barriers to teaching science in the elementary classroom (Davis & Haverly, 2024; Dorph et al., 2011; Macias et al., 2022). Research, however, shows that science learning does not detract from ELA and math achievement; instead, it supports academic growth across subjects. Science instruction develops foundational background knowledge and academic vocabulary that directly support reading comprehension and overall literacy development (Catts, 2022; Pearson et al., 2020). High-quality instructional materials that integrate science and literacy improve science achievement while maintaining or increasing reading performance, highlighting that science instruction can be leveraged to support ELA goals through integrated literacy-science approaches (Harris et al., 2023).

The Elementary Science Time Crisis and the Evidence to Act

Claim A: Far less instructional time is allotted to science than to math and ELA; moreover, the instructional time devoted to science continues to decline.

Evidence A.1: The 2018 NSSME+ reports that science is often taught less than three times per week in grades K–3, and students rarely receive daily science instruction. K–3 students receive just ~19 minutes of day of science (Plumley, 2019).	**Evidence A.2**: ELA received about 2-4 times more instructional time than science and math received two times more instructional time than science. The science block is usually shared with other subjects and not likely to be taught daily. Students received about 20 minutes per day of science instruction on average with less time in lower grades than upper grades (Davis & Haverly, 2024).	**Evidence A.3**: Instructional time for science in elementary schools had dropped to an average of 2.3 hours per week during the 2007–08 school year. This represented the lowest average since 1988 (Blank, 2013). Time for science has continued to decrease (Davis & Haverly, 2024).

Claim B: Increasing instructional time for science matters for learning.

Evidence B.1: More time spent on science instruction in grades K–2 predicted higher science achievement in later elementary years (Curran & Kitchin, 2019).

Claim C: Making time for science in elementary schools does not interrupt learning in other subjects and supports reading and reading comprehension.

Evidence C.1: Integrating science with literacy in first-grade classrooms led to gains in both domains without sacrificing reading performance (Harris et al., 2023).	**Evidence C.2**: Building students' science background knowledge through content-rich experiences significantly enhances their comprehension of science and other informational texts (Catts, 2022).

Claim D: Providing instructional time and opportunities for science learning support equity, especially for very young learners.	
Evidence D.1 A systemic approach to science education, including high-quality instructional materials, professional learning, and materials support, significantly improved student achievement, particularly for economically disadvantaged students (Zoblotsky et al., 2017).	**Evidence D.2**: Science achievement gaps begin as early as kindergarten and persist, but they are largely explained by modifiable factors, such as access to early learning opportunities. To address these disparities, science learning should begin earlier, at or before kindergarten. (Morgan et al., 2016).

Claim E: Instructional leaders are key to implementation.
Evidence E.1: School leaders design instructional schedules and can allocate time for consistent science instruction, which directly impacts whether science is taught consistently (Davis & Haverly, 2024).

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