SCIENCE INSTRUCTIONAL MATERIALS SELECTION AND MODIFICATION LANDSCAPE ANALYSIS

KEY FINDINGS AND RECOMMENDATIONS

Although more high-quality, standards-aligned instructional materials have become available to support science classrooms in recent years, it is rare for instructional materials to be implemented exactly as written word-for-word. Whether districts and schools select science instructional materials from publishers or develop their own, **instructional materials are almost always modified or supplemented to meet particular needs and contexts**. Understanding how and why educators select and make changes to science instructional materials — and whether they have the support and resources to do so with quality — is critical to improving students' opportunities in science.

To learn more about the factors that affect science instructional materials selection and modification at each level of the education system, NextGenScience conducted a landscape analysis with classroom teachers, state, district, and school leaders, and developers of instructional materials.

FINDINGS INCLUDE:

- **Reasons for modification:** Many district leaders, school leaders, and classroom teachers have the perception that **their district's current core instructional programs are not aligned with their newest state science standards**, and they also have to operate within systems that **don't provide sufficient time** to fully implement the science standards. For these and many other reasons, educators modify or supplement instructional materials.
- **Interest in and need for educator support:** Educators reported having little training, support, or time to ensure their modifications are of high quality currently. However, they see the need and are very interested in getting this support. They want to **learn more about how to make modifications** to materials that best support all of their students.
- **Developer-provided guidance:** The newest generation of instructional materials has started to provide some modification support for educators.

RECOMMENDATIONS

Based on the findings from this landscape analysis, many different parts of the education system could help bring science classrooms more in line with the vision of *A Framework for K–12 Science Education.* The following steps are recommended for policymakers and instructional materials developers:

Provide adequate time and funding for science instruction K–12.
To implement science standards, students need time and materials for instruction. Adequate science instructional time at the elementary level will help ensure that students get to experience meaningful science learning and are prepared to successfully participate in science instruction at the secondary level.

Provide or select high-quality instructional materials that are locally and culturally relevant.
Development of high-quality instructional programs is an extremely time-consuming endeavor. With limited time to prepare for science instruction, teachers benefit from access to instructional materials that will meet their students' needs, including for phenomena or problems that are relevant to both the local environment as well as to students' specific cultures, with only minor modifications necessary.

RECOMMENDATIONS *continued*

Engage teachers in the curriculum evaluation and selection process.
Providing high-quality materials is important, but how those materials are selected matters as well. Involving teachers in a transparent and rigorous curriculum evaluation and selection process will increase the likelihood the materials will meet their needs and actually be used to support student learning.

Engage in curriculum-based professional learning.
Implementation and modification of science instructional materials will be the strongest when all decision-makers, including state leaders, district leaders, school leaders, and classroom teachers, engage in professional learning to develop a common understanding of quality instructional materials, modifications necessary to meet all students' needs, and effective strategies and methods to modify materials.

Provide models of high-quality modifications to science instructional materials.
Even with the best possible instructional materials, small changes will always need to be made to meet local needs. After they develop a deep understanding of quality instructional materials, educators need examples of what kinds of modifications could be made and information about how to ensure that any changes will maintain alignment to science standards.

Communicate the importance of using high-quality instructional materials in classrooms.
The quality of the materials that are enacted in the classroom — not just selected at the district level — is a critical part of implementing science standards and effectively supporting student learning. It is therefore important for all decision-makers, including state leaders, district leaders, school leaders, and teachers, to develop a common vision of quality science instructional materials and what they look like in classrooms.

Invest in further research on science materials modifications.
In-depth research will be necessary to answer questions raised in this landscape analysis as well as in prior reports, such as "To what extent are materials used as intended?" "What is the effect of different kinds of materials modifications on student learning?" "What models can support high-quality modifications of materials at a local level?" "How can educators modify high-quality materials to scaffold learning for students who haven't had the expected pre-requisite learning?"

ABOUT NEXTGENSCIENCE

NextGenScience supports states, districts, educators, and other partners to design and identify quality, coherent programs that align science standards, instructional materials, professional learning, and assessments. Now a project of WestEd, NextGenScience was formerly the science team was formerly the science team at Achieve — the nonprofit organization that coordinated the development of the Next Generation Science Standards (NGSS) — and continues Achieve's work with stewardship and implementation of today's science standards.

Learn more about how we can support you here.

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