NGSS NOW

6 things to know in June 2024

1 Blog Post: Integrating Place-Based, Data-Rich Instruction in Science Education

The most recent *On The Same Wavelength* blog post shares a framework for place-based, data-rich science instruction. The framework was developed to support connections to local communities as well as the use and value of data in science investigations. In the blog post, the authors describe the framework and share lessons learned from a project to support teachers to incorporate these features into their classroom.

See the NextGenScience blog post here.

2 How Do We Scale Up Science Education Reform?

"*One of our pivotal roles [at the state department of education] in informing policy is really to lift up the voices of those in the field that are either being impacted directly by education, that are a part of the education profession, or communities and families that are also a part of that education system through their students.*"

Listen to the *Unpack Everything* podcast episode with Dr. Tiffany Neill here.

3 Practitioner-reported Needs for Enacting, Implementing, and Adopting a High-Quality Science Curriculum

This report identifies the needs of teachers and leaders transitioning to a new high quality curriculum, factors driving these needs, and potential solutions. The report outlines the most important support a school district needs in order to achieve sustained, effective practice when adopting and implementing high-quality instructional materials.

See the Digital Promise report here.

4 Science Curriculum Reviewer Spotlight

In this interview, curriculum reviewer Therese Arsenault shares her experience with the challenging and critically important task of evaluating science programs. She highlights the value of teacher involvement in the curriculum review and selection process as well as the importance of adopting a program that fits the needs of a community's students.

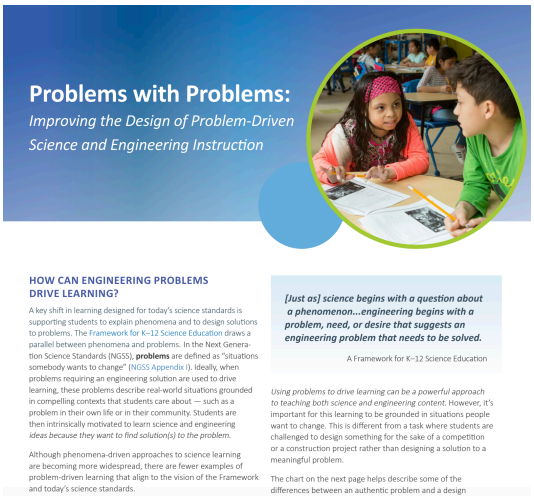
Listen or read the transcript to the EdVoices Podcast here.

5 Inaugural State of the Science Address

This National Academies event brings together leaders to explore the current state of science and technology in the U.S., including what actions may be needed to make the country more globally competitive in research and innovation. One issue to be discussed will be STEMM (Science, Technology, Engineering, Mathematics, and Medicine) education and how to adequately prepare the next generation of leaders.

Learn about the June 26 event here and register here.

6 ICYMI: We Talk a Lot About Phenomena-Driven Instruction, But What About Problem-Driven Instruction?



Problems with Problems:
Improving the Design of Problem-Driven Science and Engineering Instruction

HOW CAN ENGINEERING PROBLEMS DRIVE LEARNING?

A key shift in learning designed for today's science standards is supporting students to explain phenomena and to design solutions to problems. The Framework for K–12 Science Education draws a parallel between phenomena and problems. In the Next Generation Science Standards (NGSS), **problems** are defined as "situations somebody wants to change" (NGSS Appendix I). Ideally, when problems requiring an engineering solution are used to drive learning, these problems describe real-world situations grounded in compelling contexts that students care about — such as a problem in their own life or in their community. Students are then intrinsically motivated to learn science and engineering *ideas because they want to find solution(s) to the problem.*

Although phenomena-driven approaches to science learning are becoming more widespread, there are fewer examples of problem-driven learning that align to the vision of the Framework and today's science standards.

[Just as] science begins with a question about a phenomenon…engineering begins with a problem, need, or desire that suggests an engineering problem that needs to be solved.

A Framework for K–12 Science Education

Using problems to drive learning can be a powerful approach to teaching both science and engineering content. However, it's important for this learning to be grounded in situations people want to change. This is different from a task where students are challenged to design something for the sake of a competition or a construction project rather than designing a solution to a meaningful problem.

The chart on the next page helps describe some of the differences between an authentic problem and a design

"Using problems to drive learning can be a powerful approach to teaching both science and engineering content. However, it's important for this learning to be grounded in situations people want to change. This is different from a task where students are challenged to design something for the sake of a competition or a construction project rather than designing a solution to a meaningful problem."

Read the NextGenScience resource here.

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NEXT GENERATION SCIENCE STANDARDS
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