

NGSS NOW

8 things you need to know about the NGSS this month



November 2016

1 EQUIP Peer Review Panelists Selected

Achieve has finalized selection of the 2016-17 EQUIP Peer Review Panel for Science.

During the two-stage application process, nearly 600 applicants expressed initial interest in helping the panel identify high-quality lessons and units designed for the NGSS. Then each applicant received two NGSS sample lessons to review using the updated [EQUIP Rubric](#) (Version 3.0). Applications were reviewed based on their demonstration of understanding of the NGSS and application of the EQUIP rubric criteria. More than 150 applicants completed this second phase of the process and after all the applications were reviewed, 39 educators were selected to join the inaugural EQUIP Peer Review Panel for Science.

Looking ahead, the panel will have a two-day kick-off meeting in Orlando, FL in November. For more information about the panel, please contact Jeremy Thomas at jthomas@achieve.org.

2 Featured Standards

This issue of NGSS Now features an example of how certain PEs* could be bundled in order to develop an instructional unit that engages students in science phenomena.

HS-PS1-2: Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

HS-PS4-1: Use mathematical representations

3 Science Phenomenon

This month's Science Phenomenon is geared toward high school students. This illustrative example offers teachers a potential way to connect our Standards of the Month (November 2016) to a real-world phenomenon that students can ask questions about:

A low frequency sound wave in the 30 to 60 hertz range [can put out fire](#).

to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.*

HS-ETS1-3: Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

*The performance expectation (PE) marked with an asterisk integrates traditional science content with engineering through a Practice or Disciplinary Core Idea.

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For a more in-depth look at these NGSS PEs and to search for others, read [this](#). Need more context? See where these ideas are introduced in [A Framework for K-12 Science Education](#) (pages [109](#), [131](#), [194](#), and [208](#)).



Below are some high-level lines of student inquiry that could help students facilitate their understanding of DCIs related to the featured science phenomenon:

- What needs to be present for fire to keep burning?
- How might low frequency sound affect one or more of those things?
- In what situations might sound waves be a preferred alternative to traditional fire extinguishers?

As teachers, principals, and district leaders implement the NGSS, they might consider the questions below when discussing how to align instruction to the standards:

- a. What type of lessons can teachers develop to help students build toward this bundle of PEs?
- b. How could a classroom discussion about this month's "Science Phenomenon" (see right) help engage students around this bundle of PEs?
- c. How can principals better evaluate and support teacher leaders as they work to support their colleagues?

4

Featured NGSS Question of the Month

Q: I am a 1st grade teacher and there's not as much time to teach science in elementary school as in

middle or high school. How can I make sure my students get all of the required math, ELA, and science instruction?

A: Literacy skills and competency in mathematics are critical to building knowledge in science. Likewise, writing and presenting information orally are key means for students to assert and defend claims in science, demonstrate what they know about a concept, and convey what they have experienced, imagined, thought, and/or learned. To learn more about how the NGSS connects to classroom instruction for English Language Arts (ELA) and mathematics, please read [Appendix L](#) and [Appendix M](#). Additionally, [at the bottom of each page of the standards](#) educators can find some ELA and math connections to consider during classroom instruction.

If you would like to have your question featured in a future NGSS Now newsletter, please contact ngss@achieve.org.

5 Using NGSS Example Bundles for Course Mapping

Now that three of four sets of [NGSS example bundles](#) have been released, the next step is spreading the word to teachers and curriculum developers. [This video](#) shows just one example of how teacher Kaily Rhodes uses the NGSS storylines and example bundles to map out a year of 1st grade curriculum.

6 Tips to Develop 3D Formative Assessments for the Classroom

The team at [STEM Teaching Tools](#) has developed some activities designed to help educators consider how to develop or refine 3D formative assessments. According to the resource, "formative assessment in the classroom is crucial because everyone engaged in complex learning benefits from timely and focused feedback from more expert others. The process also promotes important processes of self-explanation, reflection, and learning." [Read more](#).

7 How Do We Integrate STEM Across Subjects?

By Anne Jolly
MiddleWeb Blog
October 17, 2016

In this blog post, a former lab scientist and Alabama Teacher of the Year shares insights about how to integrate STEM across content areas. Drawing upon her experiences both inside the classroom and beyond, the author concludes that, if done properly, a shift to school-wide STEM learning is possible. [Read more](#).

8 Engaging Kids in Scientific Modeling

"Why is it important for young children to gain experiences with scientific modeling?"

This [TeachingChannel video](#) explores scientific modeling by offering useful examples of how to engage elementary grade students. As you watch the video, consider the following questions for follow-up discussion with other teachers and administrators in your school or district.

1. What role does questioning play in these classrooms?
2. What kinds of questions do you hear?
3. What strategies can my school, or those in my district, use to engage younger students?

