NGSS NOW

10 things you need to know about the NGSS this month (and a Science fact)

March 2016

1 The New NGSS Website is Live!

The NGSS website, www.nextgenscience.org, now has a brand new look and more levels of utility. The revamped website has new features for parents, teachers, school administrators, and other advocates of the NGSS. The site offers a more user-friendly layout, extensive search features for all resources, and additional functionality to access content, including the NGSS appendices and performance expectations. You will also be able to find:

- Classroom tools for teachers
- Resources to help administrators support the NGSS in the classroom
- Evidence Statements and how to use them
- A robust set of communications resources for various audiences and stakeholders

Please look around the site to find resources, publications, and other information about the standards and share your feedback!

To share your thoughts, please use the nextgenscience.org contact form with the subject "website." This contact form can also be used for general questions about the NGSS.

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2 Bundling Standards

The concept of "bundling" NGSS performance expectations (PEs) has been presented in a Question of the Month in past issues of NGSS Now. This month features an example of how high school PEs could be bundled in order to develop an instructional unit.

HS-LS2-2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.
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.

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

a. What type of lessons can teachers develop to help students build toward

3 Science Phenomenon: The Importance of Adult Bees

Since 2006, beekeepers have observed increasing instances of Colony Collapse Disorder (CCD), an event where a colony has come to have a live queen but no adult bees.

This is important because a colony cannot survive or sustain itself without support from adult bees. In most cases, these bees are critical to performing tasks on behalf of the entire colony, including collecting nectar to make honey.

One of the shifts in the NGSS is to focus instruction on engaging students with meaningful phenomena that can be explained through the application of SEPs, CCCs, and DCIs.

Below are some high-level lines of student inquiry that could help facilitate their understanding of DCIs related to this month's featured science phenomenon:

- What are the causes of CCD?
- How can CCD be minimized or prevented?
- Why are honeybees important?

To see some additional ways that

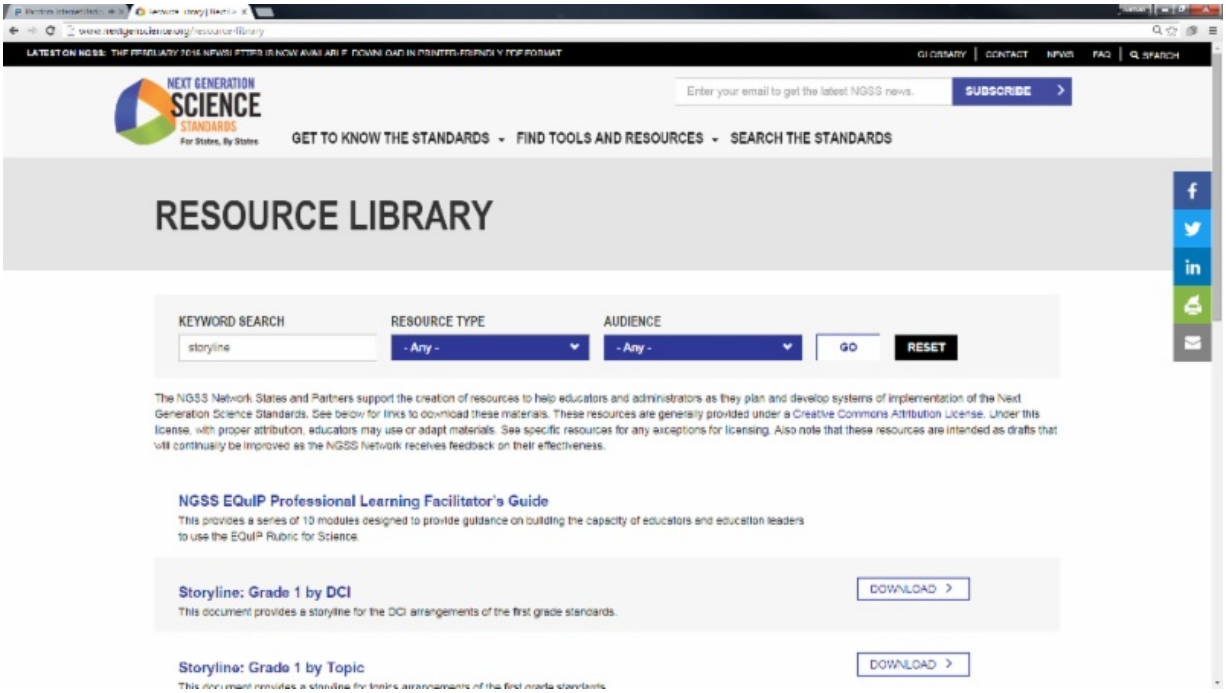
this bundle of PEs?
b. How could a classroom discussion about this month's "Science Phenomenon" (see right) help engage students around this bundle of PEs?

For a more in-depth look at these NGSS PEs and to search for others read more here. Need more context? See where these ideas are introduced in *A Framework for K-12 Science Education* (pages 150, 154, and 206).

educators are engaging students around phenomena, go here and here. Finally, this month's phenomenon is used to engage students in A 'buzzy' day at Lazar in Montville (see *NGSS in the News* below).

Q: In the printed version of the NGSS, there are descriptions of key understandings and questions related to the PEs. Those descriptions can be found at the beginning of each grade band and grade level. Are these descriptions also available in the new online search features on nextgenscience.org?

A: Yes, these questions and descriptions are called "storylines," and they describe some example context and rationale for the PEs in each grade band and grade level. These descriptions are located on www.nextgenscience.org under "Find Tools and Resources," and may be quickly accessed using the keyword "storylines" (see below). Additionally, site visitors can find these resources listed to the right of the DCI and Topics arrangements of the standards.



SCIENCE FUN FACT

Butterflies have taste receptors in their feet.

One use of this feature is that females can determine from the taste of the leaf whether their caterpillars will be able to eat it. This is also one way that butterflies can determine where they should lay their eggs.

NGSS in Educator Blogs

5

Why NGSS?

by Taylor Sullivan, *Sullyscience*
February 11, 2016

"I believe that I am part of a movement to make changes that improve science education for all students. I am making a difference for the students in my room today and making strides to better prepare students for the ever changing future. I believe in NGSS and I believe we can keep doing better for all students."

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NGSS in the News

[Carson City students show KNPB they are ready to learn]

By Brett Fisher, *CarsonNow.org*
February 4, 2016

"Kindergarten students at Empire Elementary School were treated Thursday by a visit from educators with KNPB Channel 5 in Reno.

"'When children are having fun, they are more engaged, focused, and retain more information,' [said Facilitator Joy Foremaster].

"One of the experiments involved blowing air through a straw to move a marble. Another featured a section of plastic PVC pipe, a toy car positioned at the bottom, and different sized balls that were rolled down the tube to push the car. The object of this exercise was to demonstrate which ball moved the car the farthest."

[A "buzzy" day at Lazar in Montville]

Neighbor News, *NorthJersey.com*
February 10, 2016

"Science Seven classes at Lazar Middle School have been investigating the phenomenon of Colony Collapse Disorders, relating to the nation's disappearing honeybee population.

"[B]ee keepers Richard Wyble and Jessica Wyble from Weeble Wobble Honey Farm in Washington visited all 15 classes over a two-day period. Students received first-hand knowledge about the social hierarchy of bees and causes of Colony Collapse Disorder. Students asked questions and viewed the hands-on materials that beekeepers use to raise their hives. This presentation aligned with the mission of the Next Generation Science Standards as students were able to explore a real-life issue inside their classroom."

[Getting their hands on science]

by Mike Marsee, *Kentucky Teacher*
December 3, 2015

"In one room, teachers observed the phases of the moon using simple foam balls on sticks as they circled a single light bulb. And in rooms all around Lexington Center, presenters used everything

[New Scientific Approach]

by Lynn Maguffee, *The Sun*
February 7, 2016

"After teaching for 23 years, I've finally seen the light in science education thanks to the new Arkansas K-12 Science Standards. These new standards call for letting kids explore first and then read, research or listen next. This

[Schools prepare for changes in science instruction]

by Brenda Bemet, *Northwest Arkansas Democrat Gazette*
February 11, 2016

"State officials continue to prepare for changes in what public school students are expected to know and do in science.

"The state's new science

from a giant Slinky to a syringe to a bag of marshmallows to show science teachers ways to engage their students.

"In other words, it was a typical day at the Kentucky Science Teachers Association's annual conference."

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approach has led to a level of student engagement I've never seen before."

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standards will require shifts in how the subject is taught, said Catherine Mackey, who's providing training from the Arkansas Department of Education to science teachers across the state."

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NEXT GENERATION SCIENCE STANDARDS
For States, By States