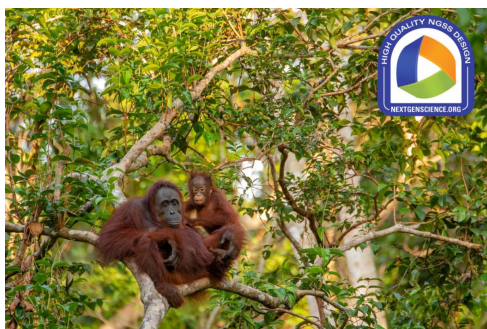


NGSS NOW

6 things to know about quality K–12 science education in **October 2021**

1 Three Quality Units Posted



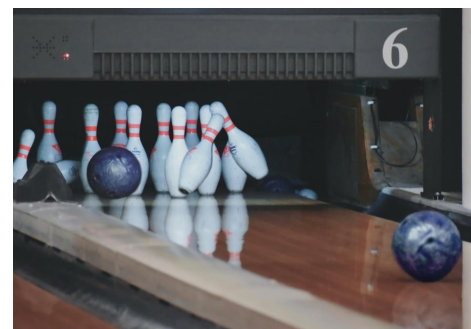
In the OpenSciEd Unit 7.5: *How Does Changing an Ecosystem Affect What Lives There?* students read headlines that connect endangered orangutan populations to chocolate candy purchasing. They learn that the chocolate ingredient, palm oil, is derived from farms near rainforests where orangutans live. Students later investigate alternative approaches to large-scale monocrop food production, and eventually design a palm oil farm that supports both orangutan populations and the community. The unit was awarded the NGSS Design Badge by the NextGenScience Peer Review Panel.

See the unit and the corresponding EQUiP Rubric for Science evaluation report [here](#).



In the K–12 Alliance Grade 5 *What's in Your Water?* unit, students figure out why people can drink water that once contained sewage without getting sick. Using their understanding of physical properties, students are asked to design a solution including a filtration system to determine what is in a local town's water samples and how to clean it. The unit was identified as an Example of High Quality NGSS Design if Improved by NextGenScience's cadre of expert reviewers.

See the unit and the corresponding EQUiP Rubric for Science evaluation report [here](#).



In the K–12 Alliance Grade 4 *Chain Reaction: Energy in Motion* unit, students explore energy transfers and transformations in everyday life to explain how a Rube Goldberg® machine works. Students investigate types of energy conversions and use their understanding to design a device that transforms energy. The unit was identified as a Quality Work in Progress by NextGenScience's cadre of expert reviewers.

See the unit and the corresponding EQUiP Rubric for Science evaluation report [here](#).

2 NextGenScience Blog Post: Studying Nemo?



How realistic should phenomena and problems be? The newest post from NextGenScience’s [On The Same Wavelength](#) blog explores questions about real-world vs. fictional scenarios and their effects on student engagement and motivation for learning.

See the post and follow the blog [here](#).

3 Report: Science and Engineering in Preschool Through Elementary Grades

A new consensus study from the National Academies of Science Engineering and Medicine (NASEM) provides guidance on effective approaches to science and engineering instruction in prekindergarten through 5th grade that support the success of all students regardless of race, socioeconomic status, home language, learning ability and needs, or the community in which they live. The report includes considerations for policies and practices that enhance science and engineering experiences for all students.



See the report and webinar recording [here](#).

4 Journal of Science Teacher Education, Free NGSS Special Issue

The latest issue of the *Journal of Science Teacher Education* includes several articles and commentary from key stakeholders in the science education field on the aspects of developing high quality science materials and principles of successful teacher learning including designing materials for emerging multilingual learners, scaling the use of high-quality materials, and project-based contexts for teacher learning.

See the full *Journal of Science Teacher Education*, NGSS Special Issue [here](#).

5 NSTA Free Web Seminar Recording: Call to Action for Science Education: Building Opportunity for the Future

In this NSTA seminar, contributors to the [NASEM’s Call to Action for Science Education report](#) discuss their “vision of an equitable and cohesive science education system, and the critical role science teachers will have in this extraordinary community effort to transform science education.”

See an archive of the web seminar [here](#).

6 Designing NGSS Assessments for Young Learners – Research Brief

The
Lawrence
Hall of
Science
UNIVERSITY OF CALIFORNIA, BERKELEY



Articulating a Transformative Approach for Designing Tasks that Measure Young Learners' Developing Proficiencies in Integrated Science and Literacy

Alison K. Billman, Daley Rutstein, and Christopher J. Harris

Abstract

As early elementary classrooms shift to implementing Next Generation Science Standards (NGSS) practices, high-quality assessments are essential for providing teachers with information about where students are in the process of developing proficiency in science. In this paper, we introduce an approach for designing NGSS-aligned assessments that measure young learners' science progress while also attending to the scientific language and literacy practices that are integral to the NGSS. The authors describe, grounded in the tenets of evidence-centered design (ECD), this approach and provide guidance for researchers and practitioners on how to design such assessments with considerations of their emerging language and literacy development (specifically transported text). The process we describe in this paper provides an example task explicitly designed for this grade students, and consider implications and future research.

Established and coherent science experiences in which they are supported in applying what they know to make sense of the natural world. This paper looks to provide for emerging school diversity of young learners in learning science if teachers have the tools to assess, select on, and improve their science instruction. In early elementary classrooms shift to NGSS instruction, high-quality classroom assessments are needed to provide critical information to help teachers determine what their students know and can do relative to the NGSS Performance Expectations—information that is critical for making informed instructional decisions. (Katz, Primm & Purcell, 2017)

Designing assessments that align with the NGSS requires an approach that embraces a new way of thinking about what learners demonstrate proficiency in science. The NGSS are grounded in the idea that proficiency in science means the ability to use science ideas to engage in real-world problem-solving, reasoning from

This research brief introduces an approach for designing early elementary assessment tasks that measure proficiency in and literacy. This approach considers how students are using science practices, disciplinary core ideas, and crosscutting concepts to figure out and explain ideas about the natural world, while ensuring tasks are developmentally appropriate for young learners.

See the research brief [here](#).



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