

Day One

Keynote • 8:30 am - 9:05 am

“Taking the NGSS to the Next Level: Increasing Scientific Literacy for ALL Students”

– Liz Mirra

The vision for the *Next Generation Science Standards* is ambitious! All students should develop a foundational understanding of science through the practices and make connections to the crosscutting concepts. Instruction should be focused on figuring out phenomena and solving problems. Achieving this vision all students is challenging – yet doable! Join nationally recognized science educator Liz Mirra as she shares her reflections and tips for success based on her work with thousands of science educators across the country.

MORNING SESSIONS • 9:15 am - 11:50 am

Choose **ONE** Full Morning Session OR **TWO** 70-Minute Sessions
One mid-morning break

Full Morning Session • 9:15 am – 11:50 am

A-1: Practical Uses of Technology in Your NGSS Lessons – Brad Fulton

Technology can simplify the analysis of scientific work while preparing students for their place in technology-rich career fields. We'll explore Google Slides and Desmos graphing software in an engaging physics lab and then learn how to use WeVideo to enhance your distance learning instruction.

**First 70–Minute Morning Sessions
9:15 am – 10:25 am**

CHOOSE ONE: A-2 or A-3

A-2: Crosscutting Concepts-Unlocking the Potential

– Liz Mirra

The crosscutting concepts are the dimension of the NGSS most teachers are least sure how to explicitly implement in the classroom. Learn what the crosscutting concepts are, why they are such a powerful tool for improving student learning, and, most complementing the NGSS.

A-3: Anchoring Units with Puzzling Phenomena: Proven Examples and Practical Strategies – Marge Porter

In this lively session we will dispel the myth that anchor phenomena are just “hooks” that “wow” your students. Beginning with a variety of solid examples we'll explore what phenomena really are, how to select appropriate ones for unit storylines and strategies for how they can best be utilized to engage learners in the process of knowledge construction.

**Second 70–Minute Morning Sessions
10:40 am – 11:50 am**

CHOOSE ONE: A-4 or A-5

A-4: The NGSS in the Physical Science, Chemistry and Physics Classrooms – Liz Mirra

Learn the content shifts found in the Disciplinary Core Ideas that impact physical science, chemistry and physics classroom. Get subject-specific resources and examples specifically aligned to the standards that will work in your classroom.

A-5: Developing Prompts for Engaging Learners in the Science and Engineering Practices and Crosscutting Concepts

– Marge Porter

Come to this session with a unit (or unit standards) in hand! You'll learn and practice innovative ways to tweak classroom-ready prompts for both the crosscutting concepts and the science and engineering practices. There will also be an opportunity to zero in on a favorite unit and select prompts that can be utilized as formative assessments. Come prepared to collaborate and share!



Team Discount

ONE DAY

One Person: \$289

BOTH DAYS

One person: \$489

**Team of 3+: \$469 per person
when enrolled at the same time**



Lunch break on your own • 11:50 am – 1:05 pm (A great time to network with colleagues!)

“Lots of hands-on, practical ways to implement new science practices”



Who is BER?

The Bureau of Education & Research is North America's leading presenter of training for professional educators. Our goal is to provide high-quality PD programs, based on sound research, with an emphasis on practical strategies and techniques that can be immediately implemented.

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A related On Demand Video-Based Online Learning course, *Help Your Students Master the Next Generation Science Standards: Practical Strategies and the Best, New Tools*, for Grades 6-12 is available for immediate registration. To enroll, visit www.ber.org/online

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Day One

AFTERNOON SESSIONS • 1:05 pm – 3:35 pm

Choose **ONE** Full Afternoon Session OR **TWO** 70-Minute Sessions
One mid-afternoon break

Full Afternoon Session • 1:05 pm – 3:35 pm

B-1: Using Explanatory Modeling to Help Your Students “Figure it Out”

– *Marge Porter*

Learn to use phenomenon-driven explanatory modeling as a mechanism to construct science learning. Identify practical ways to more effectively take on the role of facilitator as your students work collaboratively throughout a unit to model how a phenomenon works. Discover proven strategies for helping students to support arguments with evidence and to reach group consensus through productive talk.

First 70-Minute Afternoon Sessions 1:05 pm – 2:15 pm

CHOOSE ONE: B-2 or B-3

B-2: Planning Engaging Units Aligned to the NGSS for any Learning Environment – *Liz Mirra*

So you have an anchoring phenomenon to start your unit with. What do you do with it? What do you do next? What does the unit look like? How do you keep coming back to the anchoring phenomenon in an authentic way? In this session, go step-by-step through what an NGSS-aligned unit will look like in your classroom.

B-3: Teaching the Scientific Practices through STEM Instruction

– *Brad Fulton*

We will see how it's possible for students to experience nearly all of the eight scientific practices in one fun and captivating engineering challenge. Teamwork, engineering, math, technology, design, testing, and evaluation will all be addressed in this creative STEM activity.

Second 70-Minute Afternoon Sessions 2:25 pm – 3:35 pm

CHOOSE ONE: B-4 or B-5

B-4: Using Anchoring Phenomena for Optimum Learning – *Liz Mirra*

Designing instruction around anchoring phenomena is one of the key shifts in the new standards. But where do you find anchoring phenomena, how do you make sure the ones you choose don't “flop” when used with students, and what do you do with them? Learn how to successfully integrate anchoring phenomena into your science instruction

B-5: Developing Growth Mindset in Your Science Students – *Brad Fulton*

Do your students suffer from Fear of Failure-itis? Are they plagued by Risk Aversion Syndrome? Are they victims of Frustration Paralysis? Help is on the way! Learn how to turn failure from a negative to a positive in this intriguing engineering challenge that will teach your students to persevere. This activity can be adapted for distance learning.



Day Two

MORNING SESSIONS • 8:30 am – 11:15 am

Choose **ONE** Full Morning Session OR **TWO** 75-Minute Sessions
One mid-morning break

Full Morning Session • 8:30 am – 11:15 am

C-1: Developing an NGSS-Aligned Curriculum – Liz Mirra

Aligning a curriculum to the NGSS is a challenging undertaking for any school or district. Learn about the resources that are available to help you through this process and work through a proven step-by-step process that will guide you and your teachers to a science curriculum that is truly three-dimensional.

First 75-Minute Morning Sessions
8:30 am – 9:45 am

CHOOSE ONE: C-2 or C-3

C-2: Getting Post-COVID Students Who Have Fallen Behind Back On Track – Brad Fulton

Many of our students have a lot of ground to make up! Join experienced science teacher Brad Fulton and discover how to take a dreary text-based lesson off the page and get students kinesthetically involved in practicing and understanding science.

C-3: Powerful Engagement Strategies for NGSS Learning Lessons – Marge Porter

Learn proven ways to combine “classic” evidence-based learning tools with motivating and useful online applications. Help your students dive deeper and strengthen their understanding of difficult science concepts through the use of strategies that are guaranteed to reinforce the science practices and crosscutting concepts.

Second 75-Minute Morning Sessions
10:00 am – 11:15 am

CHOOSE ONE: C-4 or C-5

C-4: NGSS in Life Science: Resources and Lesson Ideas – Marge Porter

Explore a large collection of lessons, projects, and curricular materials for Life Science (LS) grades 6-12. You will walk away with a collection of high quality supplemental resources for these key topic areas:

- structure and function
- matter and energy in organisms and ecosystems
- dynamics of interdependent relationships in ecosystems
- heredity, variation, natural selection, and evolution

C-5: Maximize Every Minute in Your Science Classes – Brad Fulton

Every class minute is precious. Rather than focusing on individual scientific practices and cross-cutting concept discover how a well-designed activity can address many of them at once, maximizing your investment of time.

Lunch Break • 11:15 am – 12:30 pm • Lunch Break (on your own)

On-Site Training

Conferences like this one along with many other topics can be brought to your school or district in-person or online. Please view all of our On-Site PD options at www.ber.org/onsite or call 877-857-8964 to speak with an On-Site Training PD Consultant.

Comprehensive NGSS Resource Handbook

You will receive an extensive NGSS digital resource handbook specifically designed for this conference. Included in the handbook are resource materials for ALL conference sessions, even those you don't attend. These materials include:

- Practical ideas for helping your students meet rigorous science content and practice standards including those aligned with the Next Generation Science Standards
- Innovative strategies for integrating the science and engineering practices and crosscutting concepts into your science instruction in class or online
- Proven step-by-step techniques for planning engaging instructional sequences aligned to the NGSS
- Outstanding ideas for incorporating engineering into your science instruction
- STEM-related career choices to use with students

Registrants will also receive a printed copy of the resource handbook as long as their registration is received in the BER office at least 15 calendar days before the event.



“Very informative, knowledgeable and applicable”

Conference Locations & Hotel Accommodations



Seattle offers a great variety of area attractions and sightseeing for visitors, including the Space Needle, Pike Place Market, Pioneer Square Historic District, and T-Mobile Park.

Conference Location and Overnight Accommodations:

Hilton – Bellevue
(425) 455-1300

Mention you are attending this BER conference prior to October 15, 2021 to receive the special rate of \$139 (Single/Double), rates subject to availability. Book online at <http://group.hilton.com/4u3sv>



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Conference Location and Overnight Accommodations:

Marriott Suites – Garden Grove
(714) 750-1000

Receive 10% off the best available rate. Book your reservations online: <https://bit.ly/3qsqcDB>

Day Two

AFTERNOON SESSIONS • 12:30 pm - 3:10 pm

Choose **TWO** 75-Minute Afternoon Sessions • *One mid-afternoon break*

First 75–Minute Afternoon Sessions
12:30 pm - 1:45 pm

CHOOSE ONE: D-1, D-2 or D-3

D-1: Help Students Better Analyze Data and Construct Scientific Explanations

– Marge Porter

Learn practical strategies that will help your students more effectively analyze data and construct explanations through the use of images. Discover proven ways to encourage your students to dive deeper into content through the use of “visuals” such as timelines, graphs, maps, and cartoons.

D-2: Online and Paper-Based Assessments Aligned to the NGSS

– Liz Mirra

Explore the critical components of three-dimensional assessments and get quality examples of assessments aligned to the NGSS—including examples of assessments for online platforms. Learn where to find the newest and best resources to help you and your teachers develop assessments aligned to the new standards

D-3: What Just Happened? Fostering Scientific Thinking Through Discrepant Events – Brad Fulton

Step one of teaching the *Next Gen Science Standards* is getting students engaged in the phenomena. This engaging activity is perfect for classroom or distance learning. Students will distinguish between observations and conclusions while learning how to attend to detail in their scientific work. This fun activity sets the foundation for all their future explorations in *Next Gen* labs.

Second 75–Minute Afternoon Sessions
1:55 pm– 3:10 pm

CHOOSE ONE: D-4, D-5 or D-6

D-4: NGSS in Earth and Space Sciences: Resources and Lesson Ideas

– Marge Porter

This session will provide an opportunity to examine some favorite Earth and Space Sciences (ESS) lessons, project ideas, and curricular resources for grades 6-12. After the session you'll be given access to a folder filled with specific NGSS-aligned materials in these key topic areas:

- space systems and Earth's place in the universe
- history of earth
- earth's systems
- weather and climate
- human activity, impacts and sustainability

D-5: What an NGSS Classroom Looks Like: Coaching and Observing Science Teaching – Liz Mirra

A classroom that is truly aligned to the NGSS looks very different from the traditional science classroom. Discover the hallmarks to look for when observing a classroom that is transitioning to the NGSS and learn how to coach teachers to continue to improve their practice.

D-6: Breaking Down the NGSS: A Model for Easy Classroom Implementation

– Brad Fulton

This activity lends itself to both classroom and distance learning. In this STEM workshop, we will incorporate NGSS physics standards, technology, engineering, and math. In the process, we will use a simple model for NGSS instructional alignment.

