

Webinar Panel: Partnering Culturally Responsive Teaching & Place-Based Science Education



Roberta H Hunter,
Moderator



Gail
Richmond



Mike
Szydowski



Beatriz
Cañas



Anna
Lees

Webinar Chat and Resources Mentioned During Webinar

Resources

- Native Land Map <https://native-land.ca>
- Mobile Climate Science Labs; Videos: Hands-on Demos; <http://climatechangeeducation.org/>
- Language, Culture, and Knowledge-building through Science (LaCuKnoS) - <https://lacuknos.oregonstate.edu/home>
- National Academies of Sciences, Engineering, and Medicine: STEM Learning Is Everywhere Summary of a Convocation on Building Learning Systems. It can be downloaded for free at <https://www.nap.edu/catalog/18818/stem-learning-is-everywhere-summary-of-a-convocation-on-building>
- EcoRise has a curriculum that is EJ focused and taught in a culturally responsive way. Check out our website: <https://ecorise.org>
- National Geographic's FREE Geo-Inquiry courses - <https://www.nationalgeographic.org/education/programs/geo-inquiry/>
- Frameworks to support instructors who want to redesign their curriculum to incorporate these principles. We also have examples of biology, environmental science, and science and math methods courses and projects. <https://serc.carleton.edu/stemteacherprep/resources/244379.html>
- walkSTEM initiative: <https://talkstem.org/about-walkstem/>
- Creating a Litter-Free World -Data Insights, Citizen Engagement, and Performance Optimization - <https://litterati.org/>
- Teaching Science Outdoors - Urban Partnerships <https://teachingscienceoutdoors.org/about>
- Model and resources for “fieldSTEM” that incorporates the ideas we are discussing here <https://pacifieducationinstitute.org/work/>

- The Sounds of Your Park initiative is a continuously growing collection of sounds intended to celebrate the acoustical beauty and diversity of the world's national parks and other protected areas. <https://soundsofyourpark.com/>
- CAST Remote Learning Resources - <https://www.cast.org/products-services/covid19-remote-learning-resources>
- talkSTEM YouTube channel: Your resource for math and STEAM walking tours in real-world locations and other out-of-the-box learning experiences. - <https://www.youtube.com/c/talkSTEM/featured>
- Smithsonian Science Education Center: Webinars — <https://ssec.si.edu/event/wednesday-webinars>

Chat

Kim Descoteaux: Hi everyone! Thank you for joining us today! Please introduce yourselves in the chat

Donia M: Hi everyone ,

Olgha Q: Good Afternoon, Dr. Qaqish from NC State College of Engineering

Jake F: Jake Foster, Massachusetts

Erica J: PBE/PBL Specialist at Muskegon Area ISD

Abigail L: Hi! I am Abigail from Sacred Heart University in Connecticut

Sharon N: Sharon Nelson-Barber, Sr Director Culture & Lang in Ed, Science & Engineering Division, WestEd

Asomgyee: Hi everyone, Asomgyee Pamoja, Gulf Region Program Manager at EcoRise, live and direct from Houston, TX.

Olga I: Hi all - Olga Iwaniuk, Environmental Educator in New York City

Anna B: Hi all, I teach at Whatcom Community College in Bellingham

Sarah H: I work with Southeast Michigan Stewardship Coalition in Detroit, MI working to support teachers and community members in place-based education.

Sandra Y: Sandy Yarema, Wayne State University, Detroit, MI

Steven R: Steven Riddle, Orlando, FL, science curriculum developer.

Mike M: Hi all this is Mike, Educator from Edutab Africa, currently in Kenya

Ragan W: Ragan Webb, Elementary Science Coordinator, Columbia, Missouri

Victoria R: Victoria Rydberg, Wisconsin Department of Public Instruction, environmental education and service-learning

Cassidy M: Hi! I'm Cassidy from Sacred Heart University in CT

Donia M: My name is Donia Mohamed I'm student at Sacred Heart University, STEM major

Benjamin G: Hi all, Ben Gaines, math professor, Iona College, New Rochelle NY

Roo P: Hello, everyone! I'm Roo from Public Health Management Corporation in Philadelphia.

Terri M: Happy Friday. I'm a Professional Learning Specialist at WIDA. Coming to you from Central Florida

Lauren V: Hi I am Lauren from Sacred Heart University in CT

Jessica H: Hi! Jessica Holloway, Innovation Coach in Chattanooga, TN

Kat R: Kat, Naturalist at the Environmental Science Center in Burien, WA

Kimberly L: Kim Laliberte Director of Curriculum for Science, Fall River Massachusetts

Heather S: Heather Shaffery, I'm a science curriculum coach/specialist in Oklahoma

Wanda B: Hello from Michigan

Nicole H: Hi I am Nicole from Sacred Heart University

Danielle M: Hi everyone! Danielle Malone, Ph.D. Student from Washington State University :)

Lei L: Hi, Lei Liu, Senior Research Scientist from ETS, co-leading a research group on K-12 learning, teaching, and assessment.

Jennifer F: Hello Everyone - I'm Jennifer Feller, School Programs Manager for Mass Audubon (Massachusetts)

Julia S: Hi I'm Julia from Sacred Heart University

Beverly D: Bev DeVore-Wedding, Adams State University, Alamosa CO; teach a project-, problem-, & place-based graduate course; incorporate place-bas in my undergrad methods courses.

Liz B: Liz Butler Everitt, STE Coordinator, Newton Public Schools, Mass

Abdel F: Hello from Morocco. I'm abdefattah 40 years old, I teach physics and chemistry in high school. Happy to be you a team of Educators today

Brett J: Brett Jones, professor at Virginia Tech

Jaymee D: Aloha Kakahiaka! Good Morning... Jaymee Nanasi Davis from University of Hawaii Maui College. Excited for today's speakers.

Marianne K: Hi everyone, I'm a STEM Learning Design Manager for EiE/MOS in School, Museum of Science, Boston

Doris C: Doris Chin, research scientist, Stanford University

Quentin B: Good Morning from University of Colorado Boulder.

Richard D: Greetings! Rick Duschl joining from Caruth Inst for Engr Educ at Southern Methodist University

Maya C: Maya Crosby and Lindsey Brown from Allendale Columbia School, Director of STEM and Director of Equity

Elizabeth L: Elizabeth Lee, Director of Education and Interpretation at the Lake Champlain Maritime Museum

Joan A: Hello from Brighton, Michigan

Nahid N: Hi Everyone, I am Nahid Nariman. Researcher for a non-profit organization in San Diego.

Rachel B: Hello, I'm in Delaware and I'm an evaluator/researcher for STEM education programs

Kara H: Hello! I'm Kara, from SW Michigan, science education doctoral student and outdoor educator!

Whitney M: Morning! I teach elementary science ed classes at Western Washington University.

Alexa M: Hello from an AmeriCorp environmental educator working in a NY state park!

Kimberly L: Kim Laliberte also adjunct professor and course developer at Johnson & Wales University

Norman R: Norman Riemer-Instructional Specialist-School District of Palm Beach County, FL

Elizabeth E: Hello from Richmond VA and Virginia Commonwealth University.

Patrick N: Hello everyone! Patrick Njoroge a STEAM Educator from Edutab Africa based Kenya.

Kasey W: Kasey Walsh-Rutgers University 4H STEM facilitator and Marine science researcher

Janelle J: Greeting from Metropolitan State University of Denver

Kate W: Good morning! Kate, Alison, and Libby from the University of Wyoming

Cynthia O: Hello. My name is Cynthia Orona and I am a program coordinator from Oklahoma State University.

Joy B: Good morning! Joy Bess, SS & ELA Coordinator Columbia, Missouri

Donna T: HI everyone. Donna Taylor from the STEM Education Center at WPI in Central MA

David K: Hello All! David Kline here, Stroud Water Research Center in SE Pennsylvania- home of the Lenni Lenape!

Michael M: Good Morning, I'm Michael McKelvy a STEM Teacher at Basha High School in Arizona

Joyce C: Joyce Coleman - virtual Assistant to Dr. Coleman at Langston University

Kimberley A: Hello from the Washington State Office of Education

Amanda R: Amanda Ruyle, principal at Two Mile Prairie in Columbia, MO

Elizabeth C: Hi from Beth at LSSU Center for Freshwater Research and Education. Sault Ste. Marie, MI

Kristin H: Greetings from Richmond, VA! Engagement Strategist at CodeVA
www.codevirginia.org

Jessie N: Hi everyone! Jessie Nixon at Utah State University

Koshi D: Hi everyone - Koshi Dhingra from the talkSTEM nonprofit in Dallas, TX

Elise T: Hi All! Elise Trelegan (NOAA Chesapeake Bay Office), Eastern Shore of MD

Kathryn H: Here are the urls: <https://multiplex.videohall.com/> and <https://stemtlnet.org/>

Rebecca S: Hello! Rebecca Sansom from Brigham Young University in Utah

Sondra L: Hello from the National Institute for STEM Evaluation & Research (NISER) at the University of TN.

Jamie T: Hi! I'm Jamie from Univ. of MD Center for Env. Science, Chesapeake Biological Lab

meredeth d: TGIF! Meredith from Alliance for the Chesapeake Bay's VA office. I work as an environmental educator and currently working on a 21st CCLC STEM Watershed grant through NAAEE and NOAA.

Gay S: Gay Stewart, WVU Center for Excellence in STEM Education

Wanda B: Go Green!

Roberta Hunter: <https://native-land.ca>

Karletta C: I am on the Tohono O'odham and Pasque Yaqui lands.

Kristin H: I am occupying Pamunkey lands in Virginia

Kara H: home

Elizabeth L: the lake

Anna B: Our surroundings

Kelsie F: I am coming from the lands of the Duwamish and Coast Salish peoples.

Nahid N: home

Sherrell L: home

Tamara H: environment and culture

Nahid N: culture

Johana T: settings

Susan R: Physical space or a mindset

Jessica H: people, land, culture

Olga I: parks

Koshi D: where I am right now

James C: Hello: I'm James Callahan. I'm part of several programs that relate to and take part in incredible the STEM For all Video Showcase: Mobile Climate Science Labs, the CLEAN Network, ClimateChangeEducation.org, Lowell School Washington DC, Climate Club DC, and now working closely with Innovate to Mitigate. We do place based learning that bridges formal and informal education. Twitter @climatescilabs

Richard D: Community

Cynthia O: home

Asomgyee_EcoRise: the mountains

Quentin B: my community

Alicia K: community

sarah y: geography, culture

Joy B: my community

Kristin H: A mindset

Nahid N: family

Sarah H: social and ecological community

Koshi D: my family

Marianne K: biomes

Jose R: The neighborhood

David K: happy stressed busy

Joelle C: People, places, and landscapes

Kelsie F: Ocean, people, futures.

Maya C: community and groups

Abdel F: google earth 🤖

Sandra Y: physical location, community

Jennifer F: We work with people on lands originally stewarded by Nipmuc, Massachusetts, and Wampanoag peoples.

Patrick N: Home and surroundings

Wanda B: where I'm at any place and time

Quentin B: relevance

Sondra L: I am on the Cherokee lands in east TN.

Asomgyee_EcoRise (: Nature

meredeth d: systems that exist

Richard D: ecosystems

Nicole H: importance

James C: Our home city: Washington DC

Cassidy M: location

Nicole H: history

Cynthia W: The schools neighborhood characteristics

Sharon N: ancestors

Betsy S: Natural resources that built the place through time

Terri M: context

David K: Brandywine creek, peidmont

Nahid N: I am on the Kymeyaay land.

Abdel F: belonging

Carey S: My place in space.

Jaymee D: 'āina - that which feeds (any thing that feeds us spiritually, physically, emotionally, etc)

James C: Where we are in history. Long chain of generations -- into the past, and into the future

David K: 3rd Rock from the sun

Cynthia O: Kickapoo, Osage, Kiowa, and O-ga-xpa Territory

Amanda R: haha! YES MIKE!!!!

Joy B: Woot Woot!

Abdel F: last day I ask my soon to find our home by using google earth for the first time, so I see in his eyes huge facination. by himself told me father the north pole is not as the other one comparing size of iceberg

Janelle J: @Anna are you all utilizing language nests?

Anna Lees: @Janelle - we are not using language nests. We are using an apprentice model where language teachers are learning their language while also teaching in classrooms

Janelle J: @Anna makes sense...still great to be utilizing the intergenerational connections

Susan R: Sharing a cool project that relates to this conversation
<https://lacuknos.oregonstate.edu/home>

Joni Falk: Thanks Susan!

Jennifer F: I'd love to hear about some examples of projects that students did for this project.

Martha M: Open to hearing your needs, thoughts, ideas, and questions/research questions about soundscape. For example, using sounds and visualizations of sound to increase well-being if there is a soothing soundscape or, if it's nerve-wracking, as a way to motivate stewardship of a natural soundscape. or off-line, martha_merson@terc.edu

Valerie S: @Beatriz What are some examples of how you examine power, privilege, and oppression with 12-Jun grade students within your projects?

Martha M: How are you working with students with limited mobility to explore natural spaces? What additional tools could you use?

David K: I am very nervous about educating young students on environmental justice issues and how this may make them feel badly about their current situation.

meredeth d: I second Martha's question about students with mobility issues having access to the outdoors.

Cynthia W: Limited access to shared space could itself be a unit anchor.

Janelle J: @Cynthia great idea

Susan R: The same issue is TRUE for teaching topics like Climate Change that carries trauma and fear. The key is connecting to culture for resilience building and integrating strategies directed to learner's social and emotional learning as well

Jay L: Some helpful background information and discussion about the connections across education sectors that can contribute to both place- and culturally-based approaches is a 2014 report from the National Academies of Sciences, Engineering, and Medicine: STEM Learning Is Everywhere Summary of a Convocation on Building Learning Systems. It can be downloaded for free at
<https://www.nap.edu/catalog/18818/stem-learning-is-everywhere-summary-of-a-convocation-on-building>

Joni Falk: Thanks Jay!

Jennifer F: What a great example, Mike, thank you. Both the street salt and lawns.

Janelle J: We have to go beyond surface level aspects of culture when we use this approach. It's super important for us as educators to be humble learners.

James C: Many of our students are in Washington DC. Some extraordinary opportunities there. Able to do place-based learning to the local nature: Rock Vreek Park and Chesapeake Bay. Yet, as DC is the nation's capital, our students are very nation-wide aware. So, when they take community level action on climate change, they understand the need for leadership by students in protecting nature everywhere too. They are working to make all of DC more energy efficient and reduce the national capitol's greenhouse footprint.

Joni Falk: Interesting James... hope you can say more in the breakout session....

Asomgyee_EcoRise: We at EcoRise have a curriculum that is EJ focused and taught in a culturally responsive way. Check out our website: <https://ecorise.org>

David K: Mike - Can you share images of your oval car stickers?

Joni Falk: Thanks Asomgyee.

Jennifer F: How do you focus the student inquiry at the beginning of the project? That is, if you want them to find the problem, how do you ensure that the work they are doing does indeed cover the standards you need to teach?

Joni Falk: We will share the chat in our post-panel newsletter.

Janelle J: Please make sure to speak of Indigenous peoples in the present tense. Most textbooks and lots of educational materials don't.

Martin S: Back to community, in my experience when youth become Community Science Experts (CSEs), topics like climate change can be addressed without fear and animosity. Adults actually listen to youth and the data they present from their inquiries.

Joy B: National Geographic's FREE Geo-Inquiry courses are GREAT in helping you start this process.

Beverly D: Jicarilla Apache lands, Núu-ágha-tʼééh-pǫ́ (Ute)

James C: As our students are leaders in action on climate change, for them emotions very much include pride (in their work) and elation in being able to make a real difference. They are helping the architect of the US Capitol make the building more energy efficient. They aren't playing around in their actions -- yet they are having loads of fun!! Climate Club DC

Joni Falk: James, the fact that they feel they can have an impact is very empowering!

Tamara H: At WSU Vancouver, we are focusing on how to bring PBE and sustainability principles into undergrad education, especially preservice teacher ed. We developed a framework to support instructors who want to redesign their curriculum to incorporate

these principles. We also have examples of biology, environmental science, and science and math methods courses and projects.

<https://serc.carleton.edu/stemteacherprep/resources/244379.html>

Asomgyee_EcoRise: EcoRise also has over 250+ K-12 standards aligned lessons that are focused on Sustainability, Biomimicry, EJ and Green Building/LEED. All lessons can be easily adapted for PBL and by utilizing our Student Innovation Fund, students are able to extend their learning within the schools scope and sequence that allows them to explore and investigate ideas based on our 7 eco-themes by applying for mini-grant money to execute their research ideas.

James C: @Joni ++++ Yes! Absolutely true. The kids are very excited and engaged.

Joni Falk: Thanks Tamara... hope you can stay for breakout and we will share this chat with the links and resources

Mike Szydlowski: There was a question up above on how to make sure student ideas actually address and end up teaching the standards. That is a great question. One way is to ask the students early in the year about issues that are important to them. Then show the students the list of standards (in kid friendly form) that is required to be taught that year. Then have the kids match their important issues and concerns with the standards and see where they can fit in. This way, it is not a forced connection but may have to wait a little bit to be addressed.

Koshi D: For all youth, especially for underserved populations in urban areas, we have partnered with a wide range of organizations ranging from universities, airports, botanical gardens, airports, and cities (downtown neighborhoods) as well as schools to create STEM-focused walking tours that are virtually accessible as well accessible via a freely downloadable app (app-guided tours). We share our methods freely on our website to encourage all groups (in and out of school) to create their own STEM walking tours that we in turn share freely on our YouTube channel - if they choose to use video. Another option is for them to partner with us and share their STEM walking tours using the app - so it becomes something that becomes part of their organizational culture. So much of this resonates and it's great for me to hear from the panelists because we have a lot in common! More info about our walkSTEM initiative here:

<https://talkstem.org/about-walkstem/> One key goal is to scale place-based STEM learning opportunities

Joni Falk: Thanks Koshi for this interesting post!!

Mike Szydlowski: I love Koshi's comment above. A lot of people think of outside and environment when they think of place based or CRT. However, some of the best place-based connections can happen in urban areas. So many history and economy connections.

Koshi D: Thanks, Joni and Mike. Absolutely - all places are rick with STEM concepts and connections. Another key criterion when designing learning opportunities that my team keeps in mind is focusing on what is observable - from the student point of view - and going from there. That is what distinguishes what we can do through place-based

and culturally responsive teaching and lots of other resources (streaming videos and textbooks as major examples).

Martin S: Note: Physical Education provides excellent opportunities for PBE and cross-curricular teaching and learning.

Kara H: Check us out! <https://teachingscienceoutdoors.org/> (we just had our first field season this summer and will be actively adding resources this fall!)

Joni Falk: Thanks Kara... we will be sharing the chat with all these links in the newsletter that will be sent next week.

Marianne K: @Koshi, YES, observation is the foundation of science (and learning generally); empowering students to make & trust their own observations is so important, and PBL provides so many opportunities.

Tamara H: another great model and resources for "fieldSTEM" that incorporates the ideas we are discussing here <https://pacificeducationinstitute.org/work>

Abdel F: i cab add that every learner have a side of the story and it's needed to obtain the good description of any phenomenon. promoting diversity and new opinion must be valued, that can empower stem learning

Joel T: For the teachers of Native Youth, study the way that the elders teach. The student is has the responsibility to build a foundation for active learning. This is followed by inquiry driven building that is also hands-on and place based. Because it is in the world of the students, it has the relevance necessary for engagement. This can be done for every subject. However, as you have pointed out, takes inservice. Another suggestion is to learn the culture from the students and families.

Betsy S: Miigwech for saying that @Anna. Indigenous ways of knowing IS STEM and it is so important for indigenous knowledge to be recognized as such. Often times original ways of knowing are discounted, even while being repackaged by the dominant culture (see practices in agriculture like permaculture or in land management like prescribed burns). We definitely need to recognize that indigenous people are researchers - we have tested and refined practices for generations - and position our classrooms/communities with this in mind

Betsy S: Do you use resources developed during Covid to communicate safely and share beyond these meetings between formal and informal educators? This forum is one best model...are their community base placed based technology designed?

Kathryn H: Join us in the online follow-up discussions with our panelists on our 2 websites: <https://multiplex.videohall.com> / and <https://stemtlnet.org/>

Gail Richmond: Joel and Betsy, I completely agree. One of the most satisfying things I explore with teachers is what Indigenous Knowledge Systems can teach us as educators and learners.

Cynthia W: Thank all - off to another meetings

Joel T: Whenever possible, have the culture being the driving force for the lesson, not a tangential add on.

Joni Falk: I hope that as many of you as possible can stay from 1:00 1:20 for breakout rooms!!!

Kate B: Thank you! I must run to another meeting!

James C: For our teachers, it has made all the difference to connect with other programs -- to work together and mutual support: Local and federal government programs, informal ed... and programs we have met during the STEM for All Video Showcase!!! What incredible practical collaborations have flowed from the showcase!

Kara H: Well done panelists and facilitators!!

Kimberly L: Thank you! I have to head off to another meeting.

Terri M: Thank you so much! Must run to the next meeting.

Jennifer F: Thank you everyone! I look forward to the recording. :)

Susan R: I do have to join another meeting. Thank you!

Maya C: Thank you!

Martha M: There's so much learning that students can do outside. I want kids to get off screens and out with the people hired by cities, universities and utility companies to prune trees. And then to talk with holders of TEK to think differently about helping forests thrive.

sarah y: Thank you!

Gay S: Thank you so much! sorry, i do need to run to another meeting. looking forward to the video and the next meeting.

Martha M: There's an interesting website called <https://litterati.org/> where you can post pictures of trash and start to understand what types of trash are accumulating in your area.

David K: Thank you All! I need to run to another meeting!

Jose R: Gotta go. Thank you.

Renee B: Also want to shout out our project, Health in Our Hands, high.education, which connects community to classrooms to support students researching critical public health issues and making change

Martha M: <https://soundsofyourpark.com/>

Sherrell L: <https://www.cast.org/products-services/covid19-remote-learning-resources>

Asomgyee_EcoRise: <https://www.ecorise.org> my email: asomgyee@ecorise.org

meredeth d: Thank you for sharing that Mike! I've heard of those scopes but had forgotten about them. Now I'm going to go google them again!

Kim Descoteaux: Breakout rooms will close at 1:21

Kara H: Kara Haas, KARAHAAS@msu.edu, @KaraHaaSciEd

Emily W: Emily Weiss, weisse@berkeley.edu, 510-643-6350 (office); 617-852-7525 (cell)

Anna B: abooker@whatcom.edu

meredeth d: bye and thank you!

Beverly D: Thank you so much!

Marianne K: Thank you so much for the webinar and discussion!

Wanda B: Thanks for the conversation!

Kelsie F: I must hop to another meeting but thank you everyone!

Joni Falk: Please join the post panel discussion. We have so much to share!!!

Kim Descoteaux: If you have a resource, please post it in this chat or in the online discussion!

Koshi D: <https://www.youtube.com/c/talkSTEM/featured>

Koshi D: Thank you for a rich and fascinating exchange

Sherrell L: A few resources from the Smithsonian Science Education Center: Webinars — <https://ssec.si.edu/event/wednesday-webinars>

Joel T: Mahalo!

Nahid N: Thank you all!

Beverly D: Thank you all!