

NISE Network Online Workshop

Creating Relevant and Meaningful STEM Experiences

April 15, 2025



Today's Presenters:

- **Darrell Porcello**, Director of National STEM Networks, Children's Creativity Museum, San Francisco, CA
- **Peregrine Bratschi**, Associate Program Manager: Humanity & Life Sciences, Museum of Life and Science, Durham, NC
- **Allison Anderson**, Research & Evaluation Associate, Museum of Science, Boston, MA



Welcome! As we wait to get started with today's discussion, please...

Introduce yourself! Type your name, institution, and location into the [Chat Box](#)

Questions? Feel free to type your questions into the [Chat Box](#) at any time throughout the webinar. A selection of questions from the chat and workshop registration will be read aloud by moderators for presenters to answer during the Q&A.

Today's workshop will be recorded; those registered will receive an email when available here: nisenet.org/online-workshop-recordings

Workshop Recordings

- Introduction to STEM Learning Ecosystems - Principles and Practices for Community-wide Partnerships (recorded 2-11-25)
- Museum Experiences Participating in STEM Learning Ecosystems (recorded 3-4-25)



See You Next Time!

Upcoming Online Workshops...

**America 250 - How Can Children's
Museums and Science Centers Celebrate
the United States Semiquincentennial?**

Tuesday, June 3, 2025

2pm-3pm Eastern / 11am-12pm Pacific



Learn more and register at nisenet.org/events



Today's Agenda

- **Darrell Porcello**, Children's Creativity Museum, San Francisco, CA
What is relevance? How to adapt existing programs to be locally relevant
- **Peregrine Bratschi**, Museum of Life and Science, Durham, NC
Co-creating and relevance, creating a sense of belonging
- **Allison Anderson**, Museum of Science, Boston, MA
STEM Ecosystems and a sense of place and relevance

Darrell Porcello

Director of National STEM Networks

Children's Creativity Museum

San Francisco, CA

What is Relevance?

Two-way Conversations



Values

**Community
Issues**

Relationships

**Societal
Benefits**

**Reflection
Prompts**

**Local
Context**

**Everyday
Lives**

Emotions

How to Make it Relevant?



Temperature Mapping

Everyday Lives

Urban Heat Islands is a phenomenon that touches most people in cities.

Community Issues

Talk and **listen** to groups representing your intended audiences or individuals from those audiences in your community. How does the issue affect them? What solutions are there?

Local Context

Find **local programs** or **municipal agencies** trying to address the issue. Consider combining the activity with community-centric information or examples (e.g. a popular parking lot, a specific stretch of sidewalk)

Societal Benefits



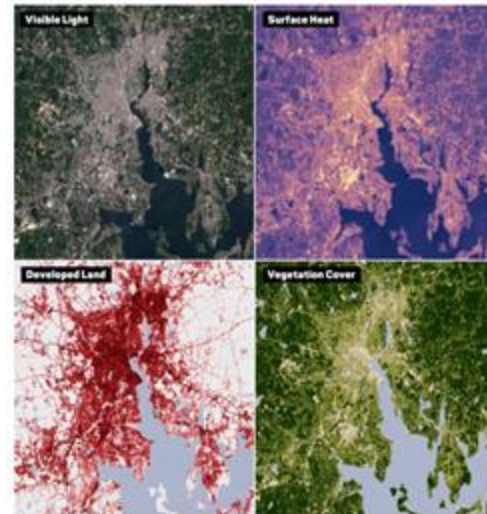
Local Context

*Globe Observer app connection lets learners record data in their local area and learn about the important factors of land cover.



Societal Benefits

*Info sheets like this one on Urban Heat Islands showcase real world topics and history that can be used in conversations with partners and learners.



Everyday Lives

*Check activity extension in the facilitation guides for ideas on additional activities that could bridge to relevant topics and experiences.

Optional extensions

Provide participants with simple materials to create roofs for a small cardboard box (e.g., white felt and black felt) and challenge them to choose a roof that reflects the most light and therefore keeps the roof cool.

Neuro Futures Card Game

Participants explore future brain technologies, voting based on their **own thoughts and values**.

Prompted to **step into the shoes of another person** to reconsider their initial choices

Our goal was for participants to practice **creativity, reflexivity, and empathy** while encouraging conversations.

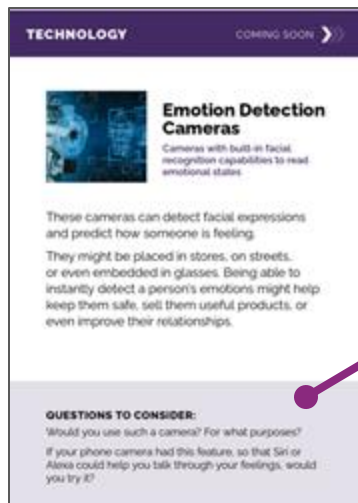


CHANGING
BRAINS



Values

Participants to prioritize technology based on what they want to see in the future.



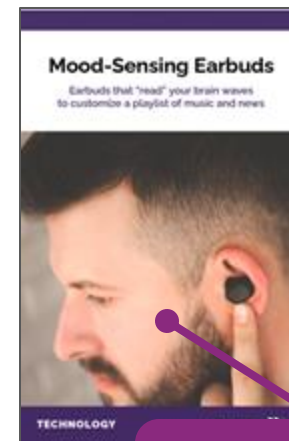
Reflection Prompts

**Thoughtful questions
to spark personal
connections and
opinions.**



Societal Benefits

**See through the eyes of
others for more
equitable progress.**



**Everyday
Lives**

Clear connections to participants' lives.



Relationships

Common roles of family and community members.

One word describes it all!

A simple question:

Which word best describes what you feel when you hear the word science?*

Public
audiences

???

Scientists

???

SciPEP

Science Public Engagement Partnership

*For adult audiences only. Volpe, C. M. (2023)

<https://www.scipep.org/resource>



Tough Love on Relevance

- Maybe opening your doors wider will not encourage new audiences to enter.
- What invisible keep-out signs are at your institution?
- The hardest part of working with outsiders is not finding them, it is listening to them.

Get to know your community partners & LISTEN to them early in your projects!



Watch Nina Simon's TED talk on YouTube:

<https://youtu.be/NTih-l739w4>

More Relevance Resources

- Nina Simon's *The Art of Relevance* book <https://artofrelevance.org/> TED talk <https://youtu.be/NTih-l739w4>
- STARnet - Community Dialogues Guide: Reach Out, Engage and Learn from Your Community <https://www.starnetlibraries.org/deia/community-dialogues/>
- American Association for State and Local History (AASLH) - Technical Leaflet #273 Demonstrating Relevance (need to create an account to access) <https://learn.aaslh.org/products/technical-leaflet-273-demonstrating-relevance>
- American Association for State and Local History (AASLH) - Technical Leaflet #263 What's the Big Idea? Using Listening Sessions to Build Relationships and Relevance (need to create an account to access) <https://learn.aaslh.org/products/technical-leaflet-263-whats-the-big-idea-using-listening-sessions-to-build-relationships-and-relevance>
- Made By Us Youth 250 - Design Your Program Tips (What makes a program great?) <https://historymadebyus.org/youth250/toolkit#design-your-program>
- NISE Network - Making STEM Content Relevant (2022 longer presentation) <https://www.nisenet.org/making-stem-relevant>

Peregrine Bratschi
Associate Program Manager:
Humanity & Life Sciences
Museum of Life and Science
Durham, NC

Co-creation and relevance; Creating a sense of belonging





Co-creation...

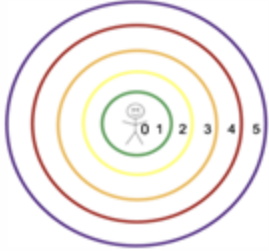
- Takes time (It *should* take longer to hear more points of view!)
- Use existing programs and relationships to do something new



- Listen to your experts!
Trust them!
- Relevance isn't
universal
- Facilitate connection
- All play is practice;
stories are schemas;
art is iteration



Measures: STEM Identity



Psychological Distance Task:

"Pretend that this person in the middle of the page is you, so circles close to you are things a lot like you and circles far from you are things not like or different than you. Where would you put a scientist?"



Button Choice:

Now, you get a button to take with you! One button says, "I do science" and one says "I'm a scientist." Which would you like?

Part I. Storybook Task

As a pilot test, we conducted informal interviews with 24 children to determine their stereotypes about which museum exhibits looked most like places where "science happens" to use in the actual study

Stereotypical Science Spaces

1. Ant Farm
2. Living Lab
3. Tornado Exhibit

Non Stereotypical Science

1. Butterfly House
2. The Farm
3. The Sound Garden



The Ant Farm



The Butterfly Garden

Belonging in STEM

Hypothesis: Re-imagining, reframing, expanding our definitions of science makes more room for more people to belong.



Challenging, iterative science tasks used in the study





Show up!



Make space!



- Build rapport in person, become a familiar (and dependable) face
- Reciprocate based on shared values
- Be a resource, leverage your connections
- Share safe space



Relationships
move at the
speed of
trust.



Allison Anderson
Research & Evaluation Associate
Museum of Science
Boston, MA

STEM Learning Ecosystems Introduction

STEM Learning Ecosystems



Arctic and Earth SIGNs



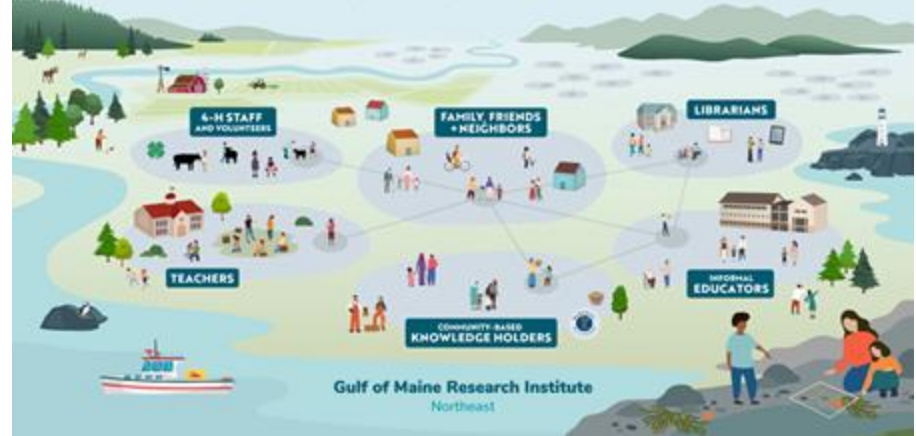
Rural Activation and Innovation Network (RAIN)



Smoky Mountains STEM Collaborative



Learning Ecosystems Northeast



STEM Learning Ecosystems

KEY IDEAS

Engagement

Authentic STEM engagement **starts** with understanding what is relevant to learners and communities, **then** creates connections to content through active learning experiences.



Authentic STEM Engagement

Relevance

Connects to identity and culture, promotes a sense of belonging, and fosters inclusion



STEM content

Includes community observations, scientific data, assets, and a range of expert perspectives



Experience design

Supports active learning, encourages dialogue, and builds on community strengths



Smoky Mountains STEM Collaborative



NISE Network Resources



STEM LEARNING
ECOSYSTEMS

Videos:

1. What Are STEM Learning Ecosystems?
2. Introduction to STEM Learning Ecosystems
3. Building and Supporting Strong Partnerships
4. Engaging Everyone in STEM Learning
5. Creating Authentic STEM Learning Experiences

Professional Learning Activities:

- What is Learning Conversation Starter
- Depict Your Partnership

Illustrations:

- STEM Learning Ecosystems Illustrations

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<https://www.nisenet.org/stem-learning-ecosystems>



Resources, reminders and Q&A

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Resources & Opportunities



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Thank You

