NISE Network Online Workshop

Young People Co-creating STEM Engagement Projects

February 3, 2026

NISE NATIONAL INFORMAL STEM EDUCATION NETWORK

Today's Presenters:

- **Rae Ostman**, Research Professor and Co-Director, Center for Innovation in Informal STEM Learning, Arizona State University (ASU), Tempe, AZ
- **Nicholas Weller**, Research Assistant Professor, Center for Innovation in Informal STEM Learning, Arizona State University (ASU), Tempe, AZ
- **Julia Monge**, Low Income Outreach Project Manager, Public Service Company of New Mexico, Albuquerque, NM
- **Emily Belle,** Animal Keeper & Education Program Manager, Sciencenter, Ithaca, NY

NISE NETWORK ONLINE WORKSHOPS

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

See you next time!
Upcoming Online Workshops...

NISE NETWORK
ONLINE WORKSHOPS

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

- **March 31st: Museums Share Experiences Participating in STEM Learning Ecosystems**
- **April 14th: Finding and Collaborating with NASA Experts - Solar System Ambassadors and Night Sky Network**
- **May 19th: Library Collaborations to Engage Local Public Audiences**

Learn more and register at nisenet.org/events

Agenda

- **Rae Ostman**, Arizona State University (ASU), Tempe, AZ
  - Overview of co-creating with young people
- **Nicholas Weller**, Arizona State University (ASU), Tempe, AZ
  - Youth internship program to co-create a digital narrative game
- **Julia Monge**, Public Service Company of New Mexico, Albuquerque, NM
  - Youth Summit project at Explora, co-created with teens
- **Emily Belle,** Sciencenter, Ithaca, NY
  - Future Science Leaders program for middle-school age youth, co-creating STEM learning experiences

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Co-creation

Co-creation: Learners and educators work together to create STEM learning experiences from start to finish. This includes collaborating to determine goals, design and implement activities, and evaluate outcomes.

- **Co-design:** collaboration during planning and design
- **Co-production:** collaboration during delivery and implementation

Co-creating with young people

Co-creation with youth is an approach to learning and program development in which young people and adults work together as partners to shape goals, activities, and outcomes.

Young people contribute ideas, make decisions, and help create meaning through their knowledge, skills, and experience.

Co-creating informal STEM learning experiences

Young people can work in partnership with informal educators to design and share STEM experiences for peers, families, or the community. Their role can include:

- Designing activities and resources
- Facilitating learning and communicating STEM concepts
- Evaluating outcomes

Adults support the process with guidance, resources, and expertise, while youth often shape concepts, relevance, and engagement.

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“Make Games, Save the Planet”

Young people as game designers and science engagement leaders

ASU Center for Innovation in Informal STEM Learning
Arizona State University

PROGRAM

Make Games, Save the Planet **positions young people as leaders** who engage their communities in shaping positive climate futures.

Twelve young people created a narrative game about the local impacts of climate change.

Program activities explored climate futures and built skills in game design, storytelling, and science communication.

Young people led the game development and playtesting, including worldbuilding, visual design, story, and mechanics.

The game immerses players in a future world, where their choices determine the outcome of the story.

2175 GAME

Aridium, 2175

After years of drought,
water is an incredibly valuable commodity. You are a new water worker—and it's your first day on the job.

A powerful utility company
controls access to water in much of the city, through a chip that residents have embedded in their arms.

Good luck!

You need to save water,
earn credits, and build your legacy—
while doing your job and interacting
with residents of Aridium.

The team playtested the game to learn about usability, interest, and engagement.

“**Getting to share it with the world** was probably the coolest part.”

LEADERSHIP MODEL

Learning outcomes for the youth leaders include growth in:

- understanding climate change concepts
- technical and creative skills related to game development
- understanding academic and career possibilities
- leadership skills and confidence

Civic science leaders are young people who engage their communities in shaping positive climate futures.


Community of young people
With varied skills and interests
Leadership Development
Action and engagement
on an issue important to them
Creative project
led by young people in partnership with mentors and experts

TAKEAWAYS

Program design principles

- Commit to authentic engagement
- Recognize strengths and support growth
- Collaborate on activities
- Build community and supportive relationships
- Respect people and the process
- Provide a comfortable environment

Youth leadership principles

- Create genuine partnerships among young people and adults
- Be clear about modes of participation
- Think about leadership from a youth perspective
- Allow young people to contribute and take action
- Provide opportunities for reflection

Additional Resources

Program design

Act for Youth. (2021). Youth development program toolkit: Resources for program planning.

Afterschool Alliance. Youth voice toolkit.

Game development

iThrive Studio. (2021). Game design studio toolkit. iThrive Games Foundation.

Keating, P. (2022). Using games in youth work for development education: A toolkit. National Youth Council of Ireland.

Climate action

Climate Toolkit Youth Network. (2025). Resource library.

Thank you!

Researchers and mentors

Wendy Barnard, Eugene Judson, Paul Martin, Rae Ostman, Nicholas Pilarski, and Nicholas Weller

Youth leaders

Alexis Kelley, Jennifer Mejia Jimenez, Noah Monjaraz, Gouri Nair, Iliana Rodriguez, Jaclyn Rodriguez, Nalani Roza, Jackeline Santiago-Aguiluz, Alex Stephenson, Lian Smith, Samiksha Varahagiri, Chloe Zhan

ASU student collaborators

Akanksha Pawar, Faith Popov, Lourdes Rodriguez, Calvin Stanley, Yannie Szeto

Funding

Arizona Water Innovation Initiative

Create the Change Initiative

Principled Innovation Initiative

ASU Arizona State University

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Engaging Hispanic Communities Initiative: Equitable Community Building through Youth Empowerment

Julia V. Monge
Formerly at Explora Science Center & Children's Museum

HORIZONS Albuquerque

¡explora!

x studio

What is the Engaging Hispanic Communities Initiative?

- A collaborative project designed to engage Hispanic/Latine youth in meaningful, community-driven experiences that increased their interest in STEAM programming.
- Focuses on amplifying underrepresented voices, empowering young people to envision and shape their futures by hosting a Youth Summit on the Future.
- Aims to bridge the gap between traditional museum spaces and diverse communities by integrating local wisdom into cultural institutions.
- Provides a platform for teens to lead, create, and co-develop a museum exhibition that reflects their perspectives, creativity, and aspirations.

Key Goals of the Initiative

Expand Access

Create inclusive opportunities for Hispanic/Latine youth to participate in STEAM programming.

Co-Create Programming

Engage youth in the design and development of museum programs and exhibitions, ensuring their voices are heard and represented.

Youth Empowerment Through Youth Ambassadors Program

Foster leadership skills by empowering teens to take on active roles in shaping cultural spaces and their futures.

Youth Summit on the Future

A transformative one-day event that brought together Hispanic/Latine teens to explore and envision their futures.

- Inspirational Keynote Speech and Discussion Panel to share insights and perspectives.
- Artistic Performances and Hands-On Activities to spark creativity and expression.
- Facilitated Conversations and shared meals to foster community and dialogue.
- Video and pictures to document and capture the day's experiences.

Outcomes of the Youth Summit

- Youth contributed their ideas and perspectives, shaping an exhibition that reflects their experiences and aspirations. The summit highlighted the importance of youth voices, ensuring that a range of experiences and insights are represented.

- Youth Ambassadors took on leadership roles throughout the event, facilitating conversations and leading activity groups. Participants left with a renewed sense of agency, equipped with the confidence to advocate for their futures in cultural institutions and beyond *(and some pretty cool swag)*.

- The event fostered relationships among attendees, community partners, and facilitators, creating a supportive network for future collaboration.

Why Youth Leadership Matters

Youth as Leaders

Empowering young people to take on leadership roles fosters a sense of ownership in cultural institutions, allowing them to influence decisions that affect their communities.

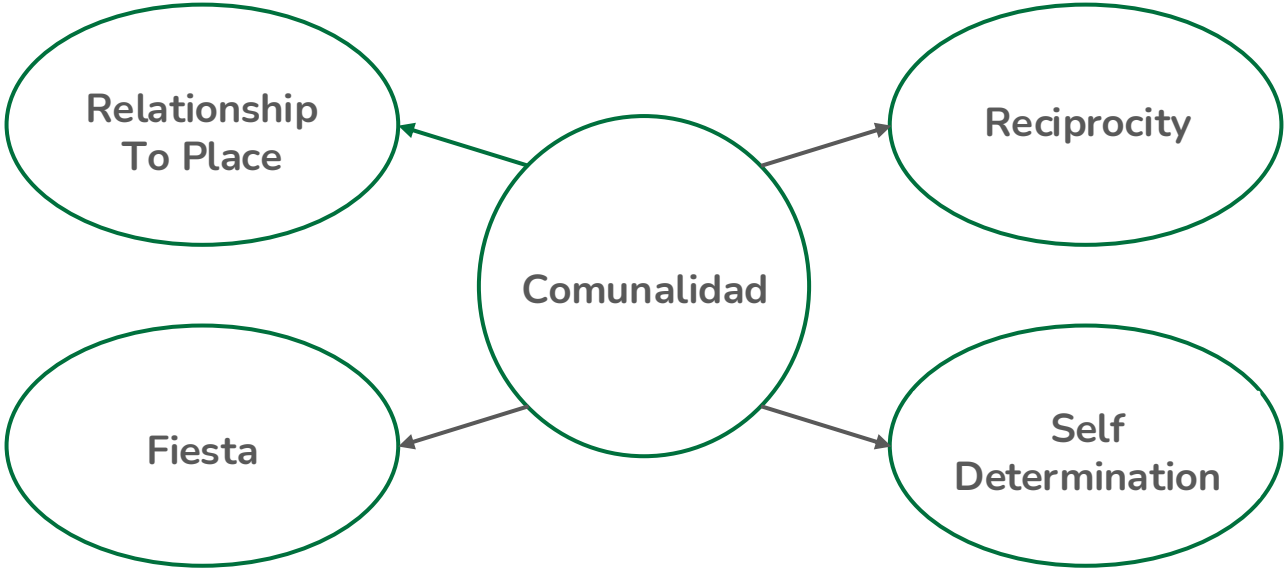
Youth Ambassadors' Impact

The Youth Ambassadors played a crucial role in the summit, facilitating discussions and guiding their peers, showcasing the power of youth voices in shaping cultural narratives.

Building Equitable Spaces

By prioritizing youth leadership, we create more equitable community spaces that reflect the values, aspirations, and creativity of the next generation.

Best Practices for Engaging Underrepresented Communities



Emily Belle

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MISSION

Cultivate an engaged community of curious, collaborative, critical thinkers

VISION

A community where people use science as a way of understanding the world

Fluorine

Sciencenter

Future Science Leaders

FUTURE SCIENCE LEADERS (FSL) PROGRAM

Youth Outcomes:

- Develop a STEM leadership identity (content, inquiry, and communication)
- Understand science as a social endeavor
- Feel a sense of ownership and belonging at the Sciencenter
- Have fun!

Example Projects:

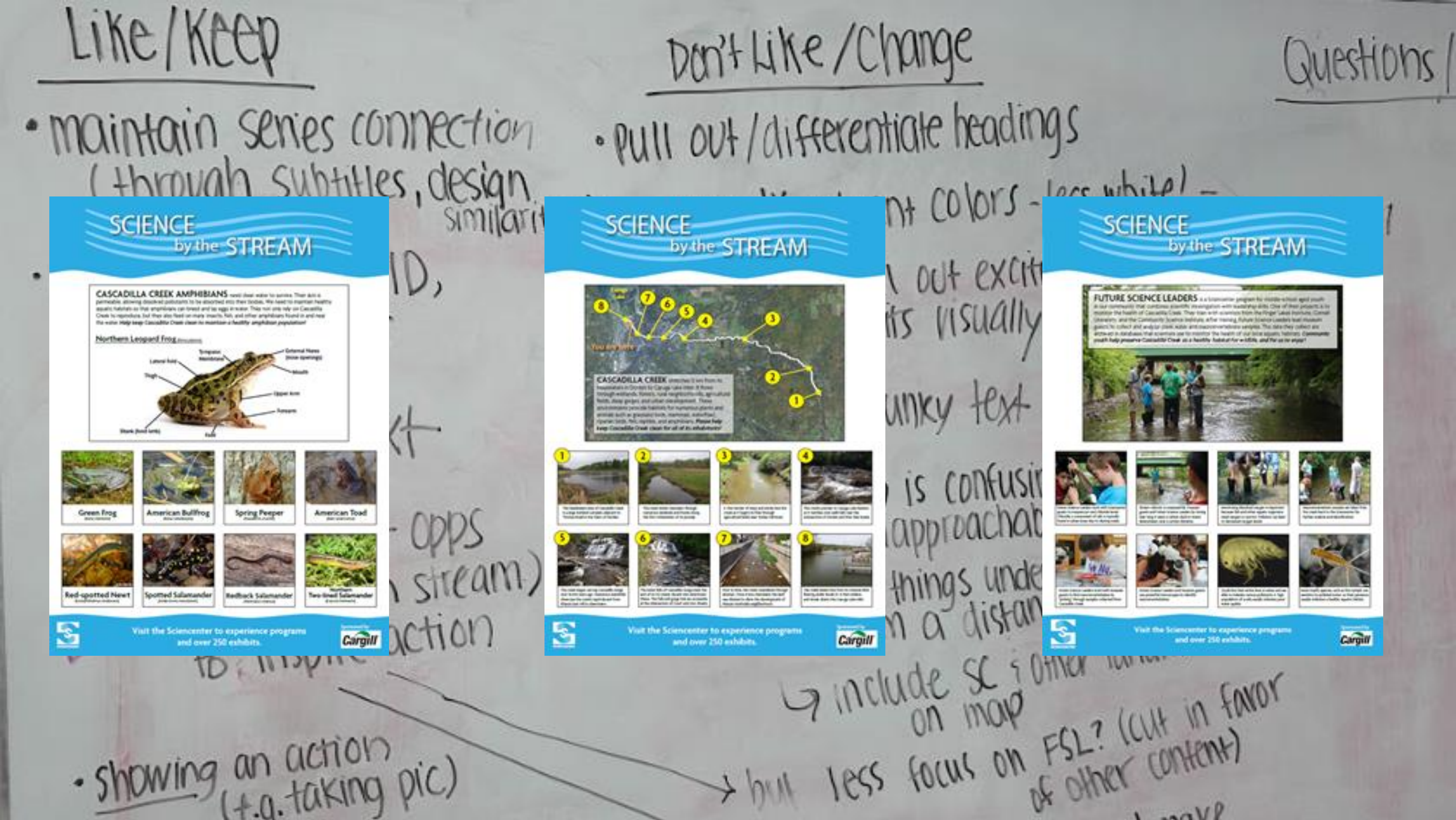
- Developing a suite of hands-on activities related to biomimicry for use at outreach events
- Working with Cornell wasp researchers to design interpretive signage for a state park
- Imagining new hole designs for the museum's mini golf course

CO-CREATION IN ACTION: “SCIENCE BY THE STREAM”

Association of Science and Technology Centers

SEEDING ACTION

iNaturalist


Like/Keep
Don't Like/Change
Questions
• maintain series connection
(through subtitles, design
similari
• pull out/differentiate headings
colors - less white
out excit
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n a distan
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on map
- opps
stream)
action
to inspire
• showing an action
(e.g. taking pic)
but less focus on FSL? (cut in favor
of other content)
SCIENCE by the STREAM
CASCADILLA CREEK AMPHIBIANS
Northern Leopard Frog
Green Frog
American Bullfrog
Spring Peeper
American Toad
Red-spotted Newt
Spotted Salamander
Redback Salamander
Two-lined Salamander
Visit the Sciencenter to experience programs and over 250 exhibits.
Cargill
SCIENCE by the STREAM
CASCADILLA CREEK
1
2
3
4
5
6
7
8
Visit the Sciencenter to experience programs and over 250 exhibits.
Cargill
SCIENCE by the STREAM
FUTURE SCIENCE LEADERS
Visit the Sciencenter to experience programs and over 250 exhibits.
Cargill


Crazy for cornmeal
SOUND
SMELL
COLO
Natural or not (not a mix)?
larger textsize
more natural?
No crazy stuff
No boring text
Small drawings
CAscadiLA
WHAT'S A SONGBIRD

AMPHIBIANS OF CASCADILLA CREEK

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonum

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonum

Cabbage White
Pieris rapae

Observed: August 2, 2025
12:13 PM

Cold Blooded in Winter Weather

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy

Conserve the Creek

- ☐
- ☐
- ☐

CO-CREATING WITH MIDDLE SCHOOL YOUTH

- Build trust and learn participants' interests
- Scaffold, set project parameters, and define youths' areas of expertise
  - Facilitation and science communication trainings
  - Near-peer perspectives
- Facilitate multiple ways to contribute throughout the co-creation process
  - In discussions and brainstorms
  - Through art and prototypes
  - Via hands-on exploration of content
- Only ask for their ideas if you are willing to give them (or some version of them) a try!
- Make their contributions visible

Resources, Reminders and Q&A

NISE Network Related Resources

- **Collaboration and Co-Creation Resources** nisenet.org/collaborations
- **Co-creating with Communities project** nisenet.org/cocreatingcommunities
- **STEM Learning Ecosystems** nisenet.org/stem-learning-ecosystems

STEM LEARNING ECOSYSTEMS

CO-CREATING WITH COMMUNITIES

Resources & Opportunities

Learn more and access the NISE Network's online digital resources
nisenet.org/browse-topic

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Thank You










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Q & A