

# NISE Network Online Workshop

Museum Experiences Participating in STEM Learning Ecosystems

March 4, 2025



## Today's Presenters:

- Renee Henry, Terre Haute Children's Museum & Nicki Manion, West Central Indiana Ecosystem
- Peter Leipzig & Emily Belle, Sciencenter, Ithaca, NY
- Beth Demke, North Dakota's Gateway to Science, Bismarck, ND
- Jenny Frank, STEM Learning Ecosystems Initiative, TIES



**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](https://nisenet.org/online-workshop-recordings)

# STEM Learning Ecosystems Introduction

# STEM Learning Ecosystems



## Arctic and Earth SIGNs



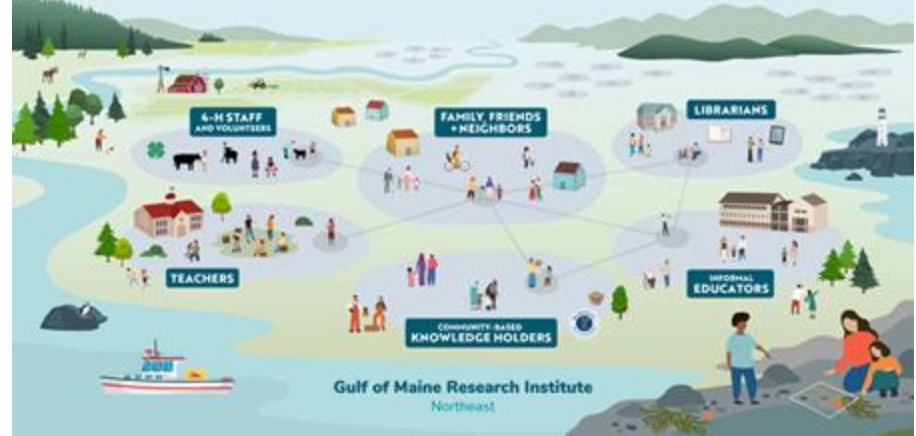
## Rural Activation and Innovation Network (RAIN)



## Smoky Mountains STEM Collaborative



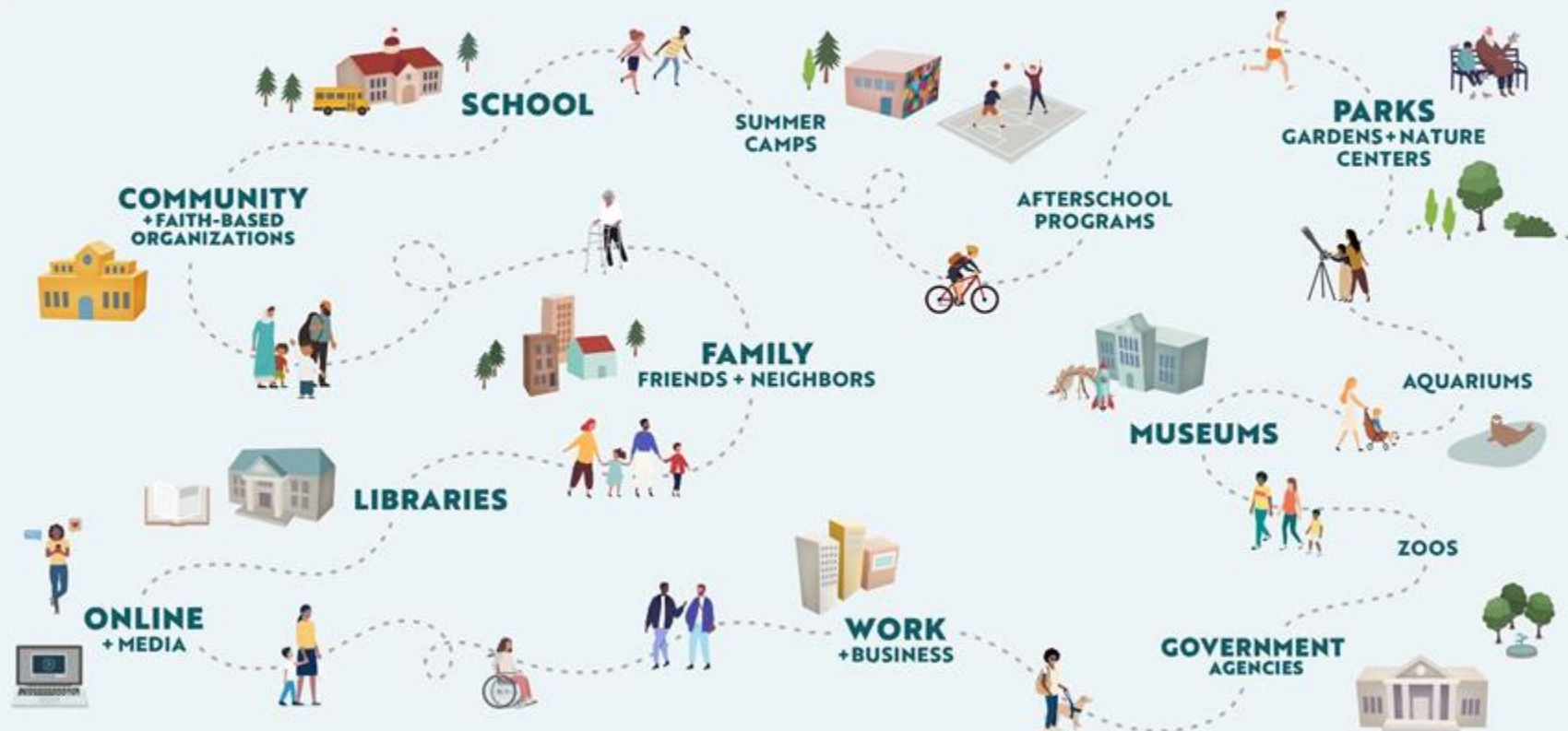
## Learning Ecosystems Northeast





# STEM Learning Pathways

Different journeys for learning across a lifetime

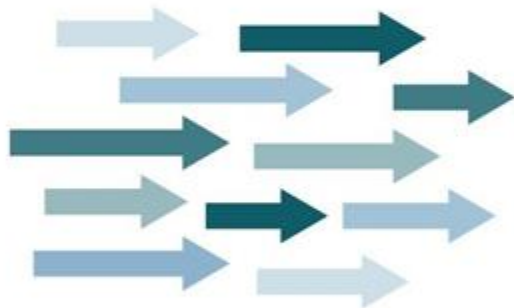


# Collective Impact

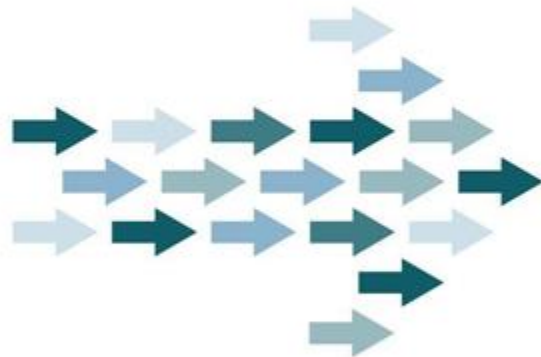
Organizations align efforts to achieve shared goals



**Independent Impacts**

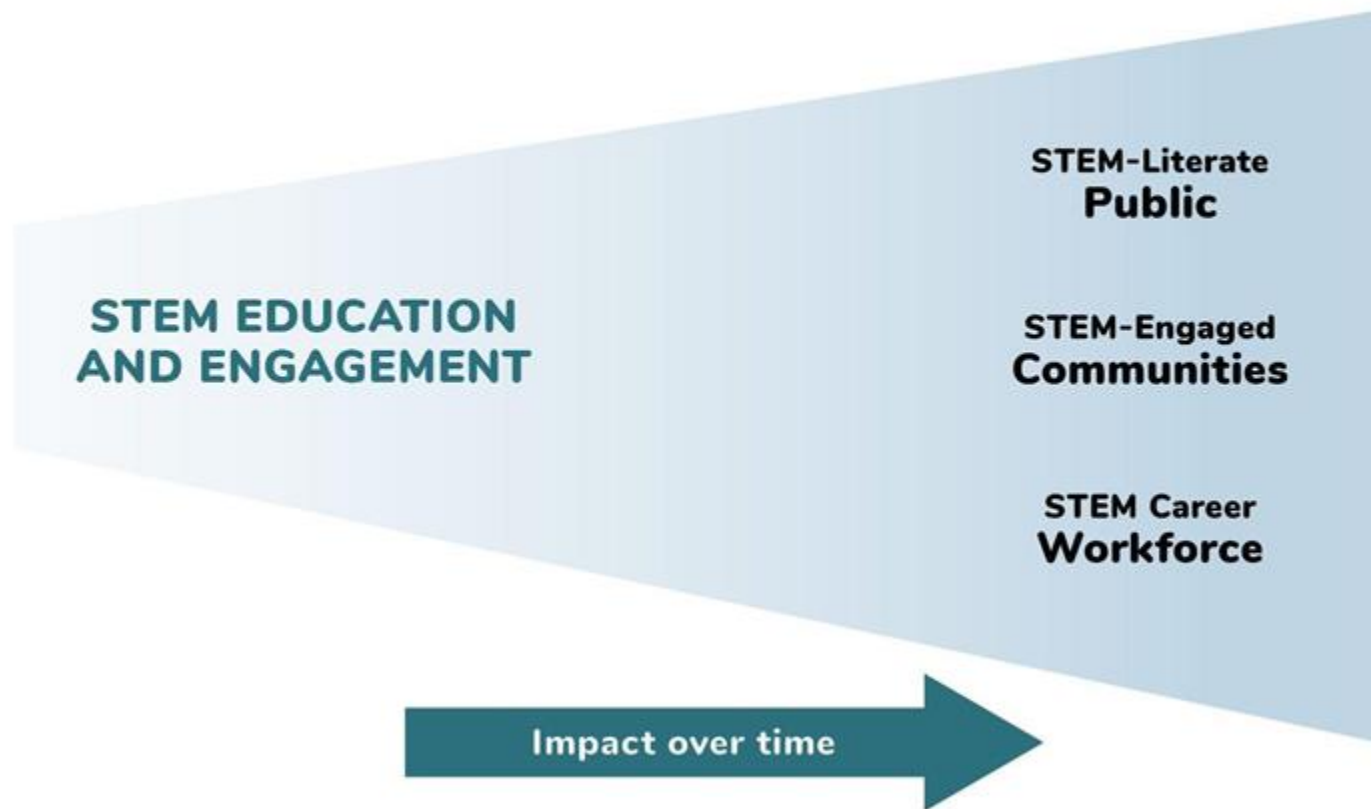


**Coordinated Impacts**



**Collective Impacts**

# STEM Learning Outcomes



# STEM Learning Ecosystems

## KEY IDEAS

### Community

STEM learning ecosystems are built and sustained through intentional practices; thrive through reciprocal relationships; and are grounded in their geographic and cultural context.



### Belonging

Ecosystems can broaden participation by cultivating genuine relationships among individuals and organizations; creating a flexible and transparent culture; sharing programming and resources; and prioritizing a sense of belonging.



### Engagement

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





# 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

## Online Workshop Recording

- Introduction to STEM Learning Ecosystems - Principles and Practice: Building Community-wide Partnerships (recorded 2-11-25)



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

# See You Next Time!

## Upcoming Online Workshops...

### Creating Relevant & Meaningful STEM Experiences

**Tuesday, April 15, 2025**

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



**Learn more and register at [nisenet.org/events](https://nisenet.org/events)**



**Renee Henry**  
Director of Education  
Terre Haute Children's  
Museum

**&**

**Nicki Manion**  
Coordinator  
West Central Indiana  
Ecosystem

# Terre Haute Children's Museum

## Terre Haute, Indiana

**Mission:** To enrich our children's lives through play and exploration of science, technology, engineering and math.



- Founded in 1988 in the basement of church by three teachers.
- Opened this building in 2010, located in downtown Terre Haute.
- 26,000 square feet on three floors
- Welcome about 50,000 visitors a year.
- 7 Full time staff and about 35 part-time.
- Budget of about \$1 million.
- <https://www.thchildrensmuseum.com>

## Partnerships have always been important!





# Indiana STEM System History



- 2015 → Early partnerships organizing around STEM initiatives
  - Lilly, IDOE, & Purdue University's Indiana Science Initiative (ISI) & the I-STEM Resource Network
  - Named the Indiana STEM Action Coalition.
  - Working to bring awareness at the state level w/goal of state legislation & funding
  - More key partners join → Indiana Afterschool Network, the Marion County STEM Coalition, Rolls-Royce Corporation & others.
- 2017 → Successful state legislation & funding → engagement in Indiana STEM Council & statewide STEM plan
- 2019 → Indiana STEM Action Coalition is renamed the Indiana STEM Ecosystem
- 2020-2023 → Sharing information & resources with over 400 members across Indiana
- 2024+ → Partners funding the revamp & expansion
- 2025-2026 → Our region is working to build our identity, funding, and structure





- ❖ **How:** Through collaborative workgroups, resource sharing, and the strategic guidance of the advisory board, the ecosystem works to create actionable plans and achieve measurable results.  
**METHOD: COLLABORATION!**

STEM  
**ec**osystems™

Connecting Communities, Fueling Growth  
*powered by ties™*



[www.stemecosystems.org](http://www.stemecosystems.org)



[www.INSTEMEco.org](http://www.INSTEMEco.org)



[www.wciesc.k12.in.us](http://www.wciesc.k12.in.us)

**Initial IN suggested participants:** Post Secondary, K-12, Community Org., Youth serving nonprofits, Business & Industries

# Region 3 Ecosystem Advisory Board

## STEM Learning Ecosystems



<b>Post Secondary</b>
Rose-Hulman Institute of Technology
Ivy Tech - Terre Haute
St. Mary of the Woods
<b>K-12</b>
Clay County Schools
North Putnam Schools
South Putnam
West Central Indiana Educational Service Center
<b>Community Groups</b>
ReThink
Terre Haute Children's Museum
YMCA Of Wabash Valley
<b>Youth Serving Nonprofits</b>
Upland Maker Mobile Lab
PTO from Hoosier Prairie Elementary
Girls Who Code
<b>Business</b>
West Central Indiana Partnership
Buzzi Unicem USA
Elanco

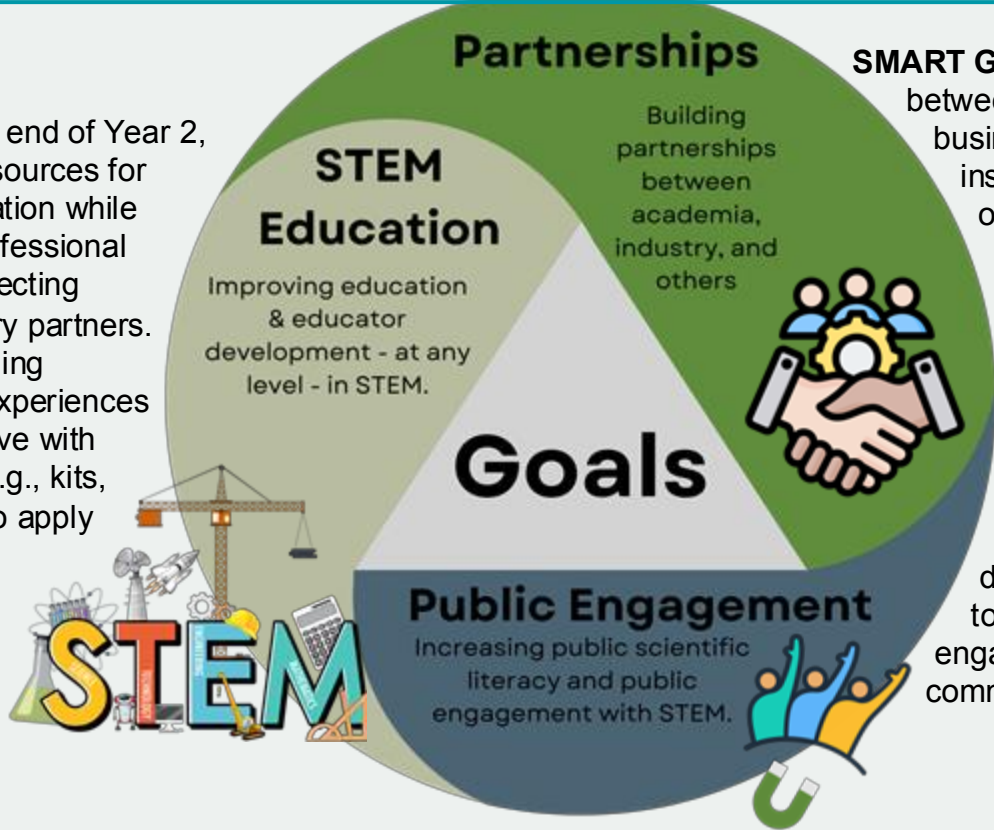


# Goals for Region 3



## NSF DEFINED BROADER IMPACT DESIRED CATEGORIES OF IMPACT: 9 Categories

**SMART Goal:** By the end of Year 2, identify needs and resources for effective STEM education while improving teacher professional development by connecting educators with industry partners. This includes embedding teachers in industry experiences and ensuring they leave with practical resources (e.g., kits, activities, or videos) to apply in their classrooms.



**SMART Goal:** Create at least 2 partnerships between the 3 sectors of business/industry, educational institutions, and community organizations to expose K-6 children to careers and career pathways by the end of Year 2 that leads to guidance for replicability.

**SMART Goal:** By the end of Year 2, determine a multifaceted approach to increase STEM literacy and public engagement with STEM in the community.

# Achievements

## Informal Connections & Collaborations

- RHIT & Terre Haute Children's Museum - NSF Grant
- STEM Festival for 2026
- Sharing AI resources between schools
- Maker Trailer connected to Educational Service Center to offer training to teachers
- West Central Indiana Partnership connected post secondary organizations with businesses for a grant



# Challenges

## Identity

- What brings us together?
- Is the purpose large enough to make people value it?

## Participation

- Do we have the right people at the table?
- When do we bring more of the ecosystem to the table?
- How do we get more consistent attendance at meetings?



**Peter Leipzig**  
Education Program  
Manager  
Sciencenter

**&**

**Emily Belle**  
Education Program  
Manager  
Sciencenter





ITHACA, NY

<https://sciencenter.org/>



## MISSION

Cultivate an engaged community of curious, collaborative, critical thinkers.

## VISION

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



- Founded in February 1983 by local teachers; built by volunteers
- Moved to current location (old wastewater treatment plant) in 1993
- Now:
  - ~4,000 members (1/4 through Membership Access Program)
  - Over 100,000 visitors each year
  - 25 staff
  - 11 traveling exhibitions





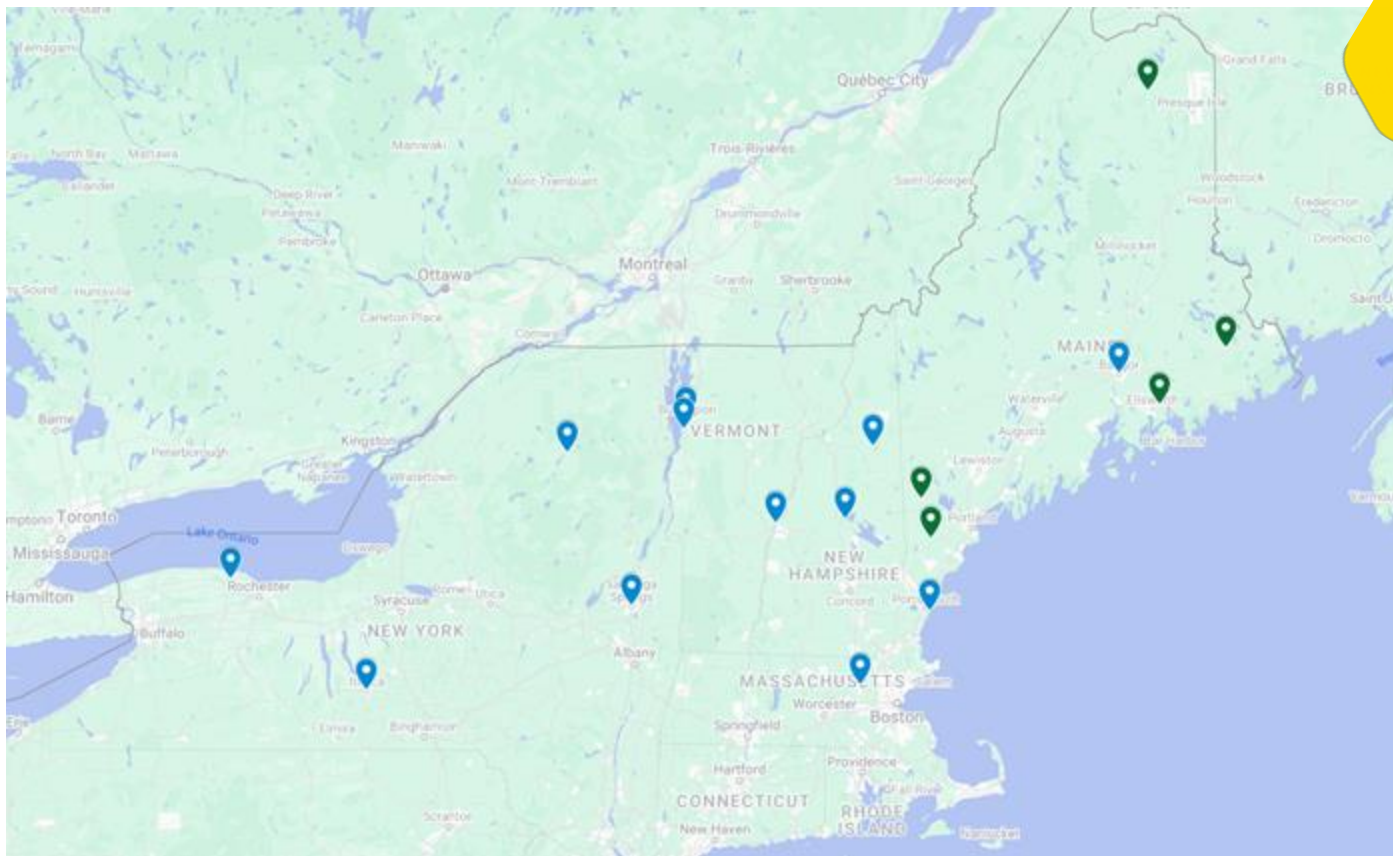
# Learning Ecosystems Northeast

[learningecosystemsnortheast.org/](http://learningecosystemsnortheast.org/)

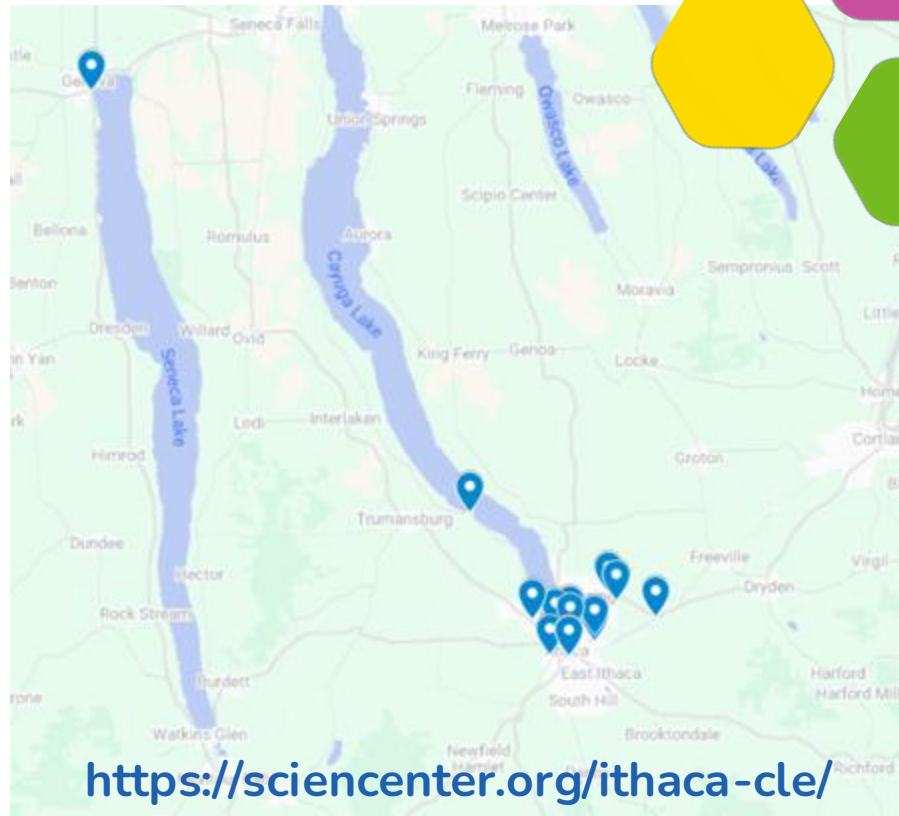




# Learning Ecosystems Northeast



- **Ithaca CLE** established in 2024
- Hyperlocal
- Members representing 22 organizations including:
  - Middle and High Schools
  - Informal Learning Institutions
  - Cornell University
  - City of Ithaca
  - Cooperative Extension
  - Libraries
  - Community Organizations





## Professional Learning & Resource Sharing

- Relationship building
- Meetings hosted by member organizations

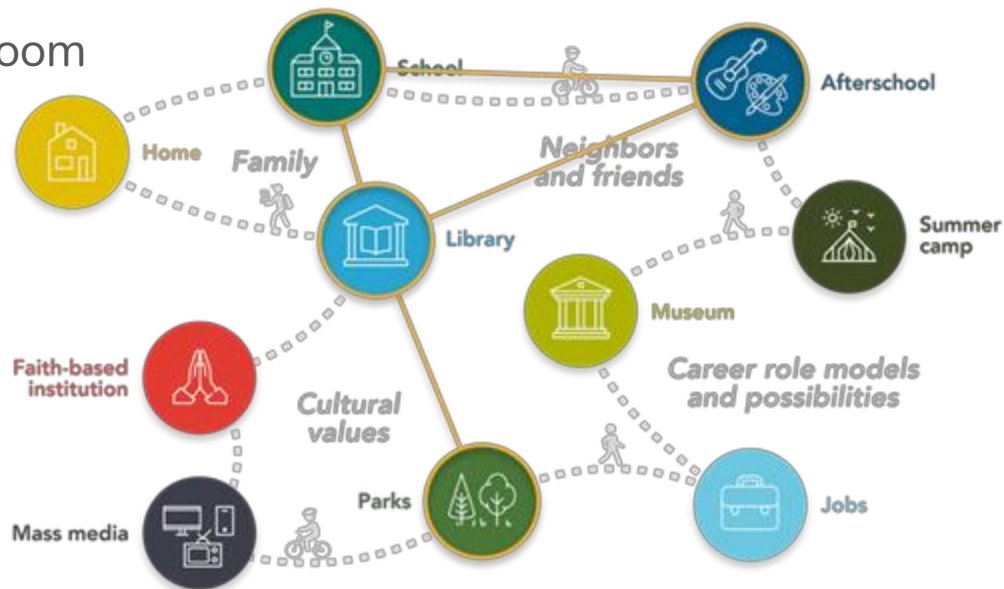
## Direct Youth Engagement

- Mini-grants to support connected learning experiences



## Challenges

- Recruiting and retaining classroom teachers alongside informal educators
- Fostering a sense of shared ownership
- Broadening participation and deepening involvement





## Strengths

- Relationship building with intention
- Professional networking for on-the-ground practitioners
- Funneling federal funding and NASA educational resources to smaller local organizations in support of climate and data literacy projects



"Mycelium in forest floor," Peryton Mango

[https://commons.wikimedia.org/wiki/File:Mycelium\\_in\\_forest\\_floor.jpg](https://commons.wikimedia.org/wiki/File:Mycelium_in_forest_floor.jpg)

**Beth Demke**

**North Dakota's Gateway to Science**

Founded in 1994 in a shopping mall

Opened this facility in 2023

43,700 sq ft

100,000 annual visitors

37 staff – 17 FT, 20 PT

Budget \$2 million

<https://gatewaytoscience.org>



North Dakota's  
**Gateway to  
Science**

Inspiring the scientist in everyone!

# Who We Are

North Dakota's Gateway to Science is a hybrid science center and children's museum. Our mission is to inspire the discovery of science through hands-on experiences.



North Dakota's  
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Inspiring the scientist in everyone!



# Interactive STEM Experiences

At the center in Bismarck

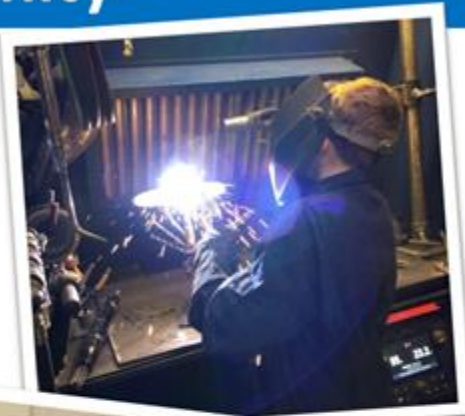


Across the state



# Connecting Classroom to Community

- We spark students' interests and connect their passions with education and career opportunities.
- We invite STEM professionals to share their expertise and interact with students in our programs.
- We engage and empower parents, grandparents, caregivers, and educators, demystifying STEM.



North Dakota's  
**Gateway to  
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Inspiring the scientist in everyone!

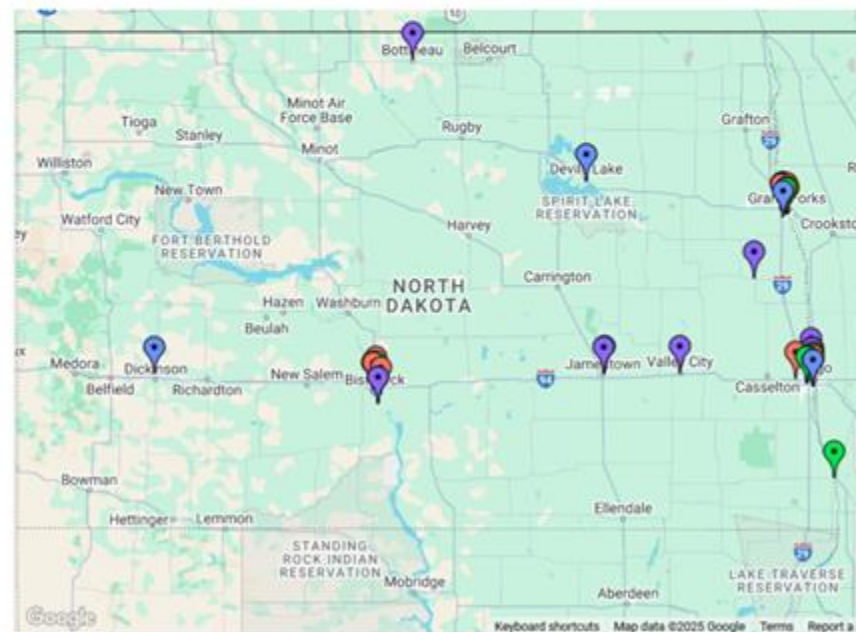


**The North Dakota STEM Ecosystem engages diverse stakeholders to shift mindsets and influence policy to achieve measurable results in the advancement of STEM education's support of workforce development in North Dakota.**



- The ND STEM Ecosystem will be the statewide resource to improve STEM access for all North Dakotans.
- The ND STEM Ecosystem will engage industry, community and education systems to address workforce challenges and STEM literacy.
- The ND STEM Ecosystem promotes a lifelong learning environment to develop employability and life skills and connect passion with opportunity.

**Advance all students as problem solvers and lifelong learners through STEM**



**Jenny Frank**

**STEM Ecosystems Initiative, TIES**

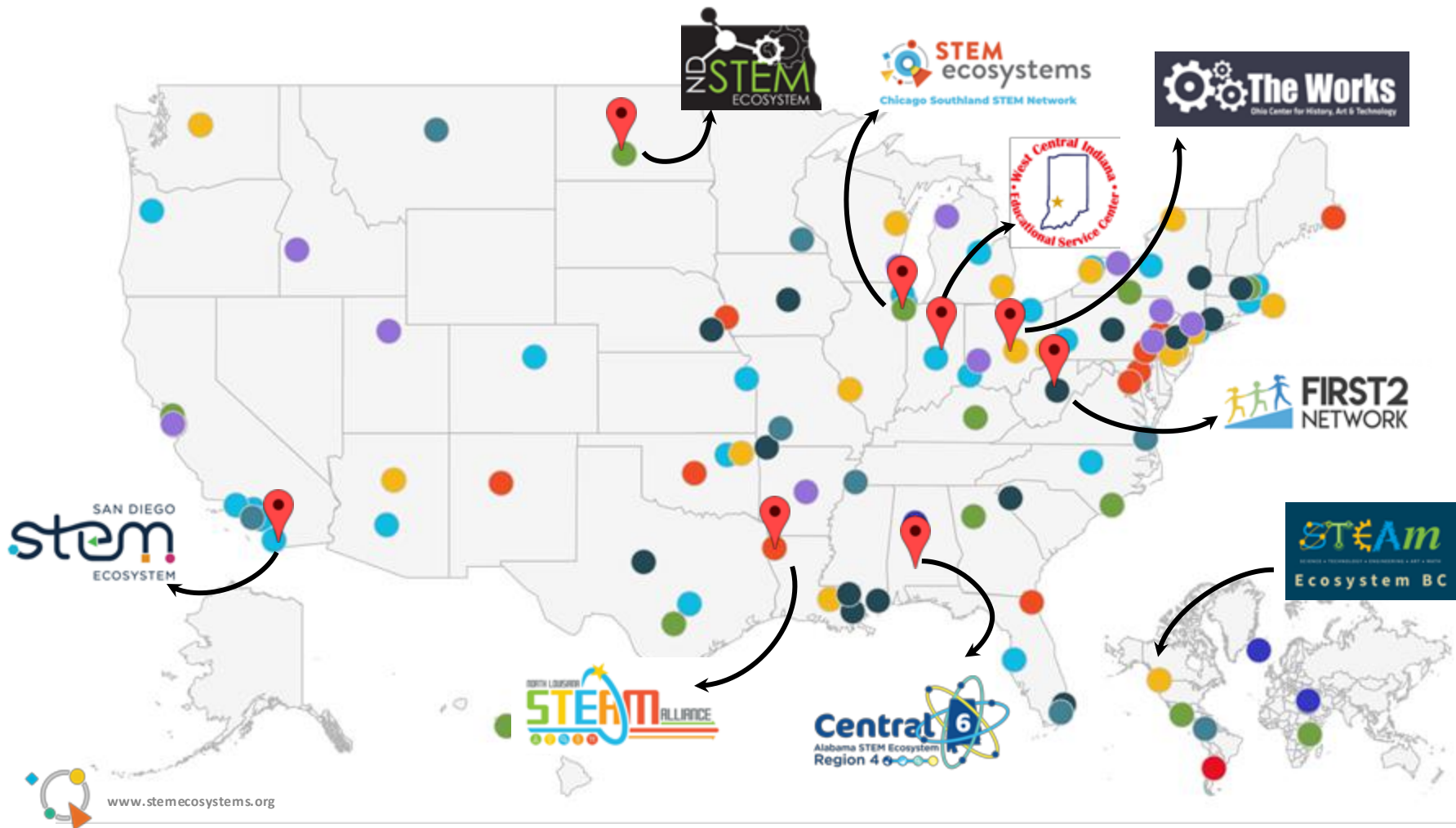
# The STEM Ecosystem Initiative

Connecting Communities,  
Fueling Growth.

## OUR MISSION: The STEM Ecosystems Initiative

A global movement that brings together leaders from education, business, government, and community organizations who work together strategically to develop high-quality STEM learning opportunities that prepare future-ready learners and strengthen workforce development in their communities. The initiative harnesses the power of connected, cross-sector partnerships to create lasting change in STEM learning and opportunity.







# STEM Ecosystems' Community of Practice

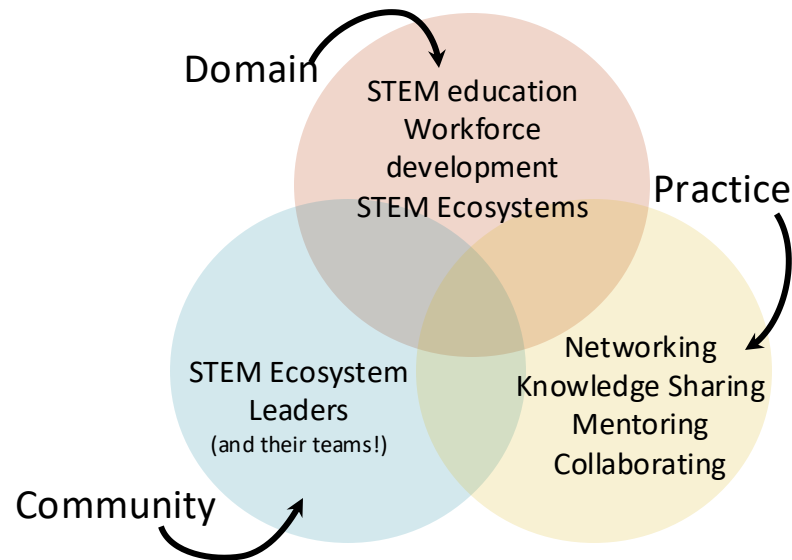
## The Power of Collective Learning.

### OUR NETWORK: The Community of Practice

In 2015, the STEM Ecosystems' Community of Practice emerged as a groundbreaking professional network designed to connect and empower leaders who were reimagining STEM education in their communities. Beginning with 27 pioneering Ecosystem leaders, this vibrant community created a space where cross-sector partnerships could flourish and innovative practices could be shared, refined, and scaled.

#### A Decade Later

Now celebrating its 10th year, the professional learning network connects and empowers STEM Ecosystem leaders through shared learning, peer support, and collaborative problem-solving. This vibrant community enables leaders to share best practices, access resources, and develop innovative solutions to build future-ready STEM learning pathways and workforce opportunities in their communities while being part of a larger support system of experienced peers.



# Our Impact Framework

## Defining Collective Impact

### OUR IMPACT: The Power of WE

Since its inception in 2015, the STEM Ecosystems Initiative has grown to encompass over 120 STEM Ecosystems across the United States and internationally. A first-of-its-kind global collaboration, STEM Ecosystems collectively serve millions, exposing learners to a variety of opportunities in STEM.

#### The Five Conditions:

**Common Agenda:** Shared vision for change and understanding of the problem

**Shared Measurement:** Collecting data and measuring results consistently

**Mutually Reinforcing Activities:** Different activities that coordinate through a plan of action

**Continuous Communication:** Regular meetings and updates to build trust and adjust plans

**Backbone Support:** Dedicated staff and resources to coordinate the initiative



# Our Foundation

## Our roadmap to impact

### OUR WORK: The 5 Pillars of Thriving STEM Ecosystems

STEM Ecosystems represent a transformative approach to STEM education and workforce development, bringing together cross-sector partners to create authentic and immersive learning opportunities. Five key pillars form the foundation of our work, including: Partnerships, Systems, Teaching & Learning, Measurement, and Workforce.

These pillars, informed by years of research and practical experience, guide the strategic direction, shape the collective impact, and serve as a roadmap for our efforts to transform STEM education and prepare learners for the challenges and opportunities of tomorrow

<b>PARTNERSHIPS</b> Creating Space for Collaboration	<b>SYSTEMS</b> Architecting STEM Ecosystems	<b>TEACHING &amp; LEARNING</b> Reimagining STEM Learning	<b>MEASUREMENT</b> Measuring Community Impact	<b>WORKFORCE</b> Building Future- Ready Talent
We join education, business, and community together to transform STEM learning.	We support communities in building strong STEM Ecosystems that work for everyone.	We redesign STEM learning that spark creativity and innovation, and build future-ready skills.	We measure how our work strengthens communities and improves learning outcomes.	We support career-connected learning by building bridges between education and workforce partners.





**Jennifer Conklin-Frank**  
Director of STEM Ecosystems Initiative,  
powered by TIES



## Let's Connect



[www.stemecosystems.org](http://www.stemecosystems.org)



[info@stemecosystems.org](mailto:info@stemecosystems.org)



STEM Learning Ecosystems  
[#STEMEcosystems](https://www.linkedin.com/company/stemecosystems)

# Resources, reminders and Q&A



# NISE Network Resources



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# Resources & Opportunities



Learn more and access the  
NISE Network's online  
digital resources  
[nisenet.org/browse-topic](https://nisenet.org/browse-topic)



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[nisenet.org/newsletter](https://nisenet.org/newsletter)



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[nisenet.org/online-workshop-recordings-list](https://nisenet.org/online-workshop-recordings-list)

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# Thank You

