Tools for Collaboration: increasing your museum's local impact through partnerships:

- Rae Ostman, Arizona State University
- Brad Herring, Museum of Life and Science
- Catherine McCarthy, Science Museum of Minnesota
- Ali Jackson, Sciencenter, Ithaca, NY
- Discussion
  - Melissa Ballard, Afterschool Alliance
  - Karen Peterson, National Girls Collaborative Project
  - Keith Ostfeld, Children’s Museum of Houston

Interactivity Association of Children’s Museums Conference, May 2016
Tools for Collaboration: increasing your museum's local impact through partnerships

Museum & Community Partnerships Project Overview

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Interactivity
Association of Children’s Museums Conference
May 2016
Stamford, Connecticut
MUSEUMS AND COMMUNITY PARTNERSHIPS:
Leveraging Resources and Increasing Impact
NISE Network

National Network
• Originally dedicated to nanoscale science, engineering, and technology
• Now have projects on a range of STEM topics

Activities
• Public engagement
• Professional development
• Knowledge and practices related to informal learning

Partnerships
• National
• Local

620 ORGANIZATIONS
 regularly participate in Network activities

368 museums
208 universities
44 industry, other
Currently, NISE Net programs, events, and exhibitions reach 10 MILLION PEOPLE each year!

NanoDays kits reach 1 MILLION PEOPLE annually

Nano exhibitions reach 9 MILLION PEOPLE annually
Museums & Community Partnerships

Project goals:

1. Engage local communities more broadly in STEM learning, focusing on nanoscale science, engineering, and technology

2. Develop local partnerships between museums and community organizations, helping museums reach new audiences and helping community organizations provide high-quality STEM learning experiences for their audiences

3. Identify, develop, and share successful practices and models for reaching new audiences and developing successful collaborations among local organizations
National Partners

Core partners
- Afterschool Alliance
- Boys & Girls Clubs of America
- Girls Inc.
- National Girls Collaborative Project
- 4-H

Additional participation
- American Library Association
- Arizona State Library
- Boy Scouts of America
- Girl Scouts
- Parent Teacher Association (PTA)
- Y (YMCA)
- YWCA
**Project overview**

**Target audience**
- Elementary
- Traditionally underserved and underrepresented

**Process**
- Existing and new partnerships
- NISE Net partners apply, receive kits, and report
- Partnership is defined and managed locally

**Resources**
- 100 kits

**Timeline**
- Kits delivered winter 2016
- Program delivery spring-summer
- Report on activities summer 2016
- Evaluation results winter 2017
Materials

Public engagement
• Hands-on activities
• Videos and supporting materials

Professional resources
• Planning and promotional materials
• Training videos, slides, and guides
• Collaboration guide, video, and tools
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Tools for Collaboration: increasing your museum's local impact through partnerships

Creating a Video: Advice for successful collaborations

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Interactivity
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Stamford, Connecticut
Video: Creating Successful Collaborations: Museum and Community Partnerships

Available at www.nisenet.org/collaboration-guide and https://vimeo.com/139256428
Tools for Collaboration: increasing your museum's local impact through partnerships

Collaboration Guide and Tools

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Why Collaborate?

To achieve something you can’t do on your own!

Collaboration occurs when organizations and individuals make a commitment to work together and contribute resources and expertise to achieve a common, long-term goal.

1. To share resources, expertise, and connections
2. To build upon existing strengths
3. To reach new audiences
MUSEUM & COMMUNITY PARTNERSHIPS:
Collaboration Guide
For museums working with community youth-serving organizations
By Catherine McCarthy and Brad Herring

Available at www.nisenet.org/collaboration-guide
<table>
<thead>
<tr>
<th>Purpose</th>
<th>Commitment</th>
<th>Structure</th>
<th>Communications</th>
<th>Process</th>
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</thead>
<tbody>
<tr>
<td>Awareness + understanding</td>
<td>Loose connection, low commitment</td>
<td>Roles not defined, informal</td>
<td>Frequent</td>
<td>Independent decision-making</td>
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<tr>
<td>Collaboration</td>
<td>High level of commitment + trust</td>
<td>Formalized timelines, responsibilities + roles</td>
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<td>Coalition</td>
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<td>Coordination</td>
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<tr>
<td>Networking</td>
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Levels of Partnerships - Continuum
Tips for Successful Partnerships

Be patient! Collaboration takes time

- Start small; developing a relationship and building trust takes time
- Communicating takes time: your organizations have different cultures and terminology
- Always keep the long-term relationship in mind while working on shorter-term projects
- Start early; your partner’s schedule will vary from your own, so be sure to include enough lead time so that you both can be prepared for the work of the collaboration
Be clear about your goals and expectations

• **What:** Decide on your common goals; be sure your partnership is mutually beneficial
• **How:** Agree upon activities to meet your shared goals and missions
• **Who:** Clarify your roles and responsibilities for all project activities
• **Where:** Decide upon the locations of activities
• **When:** Agree upon a timeline and key dates, and check in regularly
Tips for Successful Partnerships

Get to know each other
Each partner has a lot to learn and a lot to offer

• Familiarize yourself with your partner organization through websites, newsletters, events, and other opportunities

• The more you understand about each other’s purpose, activities, audiences, and culture, the easier your partnership will be

• Individuals come to a partnership with different strengths and experiences; every group needs dreamers, developers, and doers
Communication is critical

• Strive to achieve a flexible, trusting atmosphere; be open and honest while still being tactful and supportive
• Things may not always go smoothly, so don’t hesitate to pick up the phone and have an honest conversation to work things out
• Involve more than one contact person at each organization at different levels to ensure a deeper relationship that can survive changing circumstances and turnover
Tips for Successful Partnerships

Stay focused on your goals
And don’t forget to celebrate your successes

• Reflect on the original goals of your partnership and project, and consider how you want to improve, change course, or evolve the relationship

• As you work together, keep your long-term relationship in mind; by leveraging your combined resources and strengths, you can each do much more for your community
Collaborating with National Youth Serving Organizations

1. 4-H
2. Afterschool Alliance
3. Boys & Girls Clubs of America
4. Boy Scouts of America
5. Girls Inc.
6. Girl Scouts
7. Libraries
8. National Girls Collaborative Project
9. Parent Teacher Association (PTA)
10. Y (YMCA)
11. YWCA
Tools and Templates

Template MOUs & emails

Profiles of National Youth-Service Organizations

Museum & Community Partnerships
Profiles of National Youth-serving Organizations

Collaborating with an existing youth-serving organization on STEM activities is an effective way for museums and university outreach programs to connect with audiences they may not regularly reach, particularly underserved audiences.

The following profiles of national youth-serving organizations have been compiled to assist museums and university outreach programs in developing partnerships with a community organization or a local chapter of a national youth-serving organization. These profiles are intended to provide a brief introduction to each organization.

1. 4-H
2. Afterschool Alliance
3. Boys & Girls Clubs of America
4. Boy Scouts of America
5. Girls Inc.
6. Girl Scouts
7. Libraries
8. National Girls Collaborative Project
9. Parent Teacher Association (PTA)
10. Y (YMCA)
11. YWCA
Illustrative Stories and Advice

“Community organizations and museums have a common interest, they both want to make their cities a better place. Science is an essential part of that.”

- Jayatri Das, Chief Bioscientist, The Franklin Institute, Philadelphia, PA

“You always have to be open about what is working, what is not working, why it didn’t work, and why is it successful. Communication is the key to making a good partnership work.”

- Dorothy McCargo Freeman, Associate Dean and State 4-H Director, University of Minnesota Extension Center for Youth Development, Saint Paul, MN
Barriers to Success

• Lack of time and capacity to sustain the relationship
• Lack of clear purpose or common vision
• Lack of understanding roles or responsibilities
• Lack of commitment or buy-in by key individuals
• Major differences in philosophies and styles of working
• Unacceptable balance of power and control
• Staff turnover
• Failure to communicate
• Lack of feedback
• Failure to respond to feedback and evaluation
• Financial input and time commitments outweigh potential benefits
Tools for Collaboration: increasing your museum's local impact through partnerships

Museum & Community Partnerships Project kit contents

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Explore Science kits

• Designed for hands-on learning
• Adaptable to different settings and learners
• Five units, each with several activities
• Everything you need is in the kit!
Themes

• Intro to Nano
• Small and Surprising
• Labs and Tools
• Tech and Nature
• Nano and Our Lives
Zoom into Nano

A nanometer is a billionth of a meter. That’s very, very small!
Small and Surprising

Nano-sized things can behave in surprising ways.
Labs and Tools

Nano scientists use special tools and equipment.
Tech and Nature

Nano research lets us create new technologies and understand nature.
Nano and Our Lives

Nanotechnologies will be part of our lives—now and in the future.
Activity materials
Activity instructions

**Draw a Circuit**
Can a pencil conduct electricity?

**Try this!**

1. Lay down some graphite! Use the drawing pencil to color in the box on the paper. Make it nice and dark!
   (Graphite is the real name for pencil lead.)

2. Touch the two insulated wires to the graphite box. Listen closely—what happens?
   Now try moving the wires closer together and further apart. Do you notice a difference?

The buzzer sounds because the graphite conducts electricity. Graphite is made of many layers of carbon stacked on top of each other.

**What's going on?**
The graphite on the paper conducts electricity. It completes an electrical circuit, making the buzzer sound. Graphite is a mineral made of many layers of carbon stacked on top of each other.

Graphene, a relatively new nano material, is also made up of carbon atoms. It's only one atom thick—that's a fraction of a nanometer! (A nanometer is a billionth of a meter.) In 2010, scientists won a Nobel Prize in Physics for creating graphene out of graphite. Their celebrated method was surprisingly simple. They used ordinary transparent tape to peel apart layers of graphite until it was very thin. Then they measured their results and found out that they’d made graphene!

**How is this nano?**
In the field of nanotechnology, scientists and engineers make new, nano-sized materials and devices. Graphene has a lot of useful properties. It's flexible, super strong, and nearly transparent—and it conducts electricity.

Computer chip manufacturers are developing circuits from graphene, by modifying it to make it a semiconductor. One day, graphene could be used to make see-through, bendable electronic displays, and tiny, fast computer chips.
Graphene is a single layer of carbon atoms arranged in a honeycomb pattern. Graphene is only one atom thick—that’s a fraction of a nanometer! (A nanometer is a billionth of a meter.)

Graphene is a new nano material that is also made of carbon atoms. It's only one atom thick—that's a fraction of a nanometer, so it can be used for new nanotechnologies.

Graphene conducts electricity, so it can be used for new nanotechnologies. Like graphite, graphene might be used in thin, flexible electronic components, transparent touch screens, and organic solar cells.
Notes and tips

### Draw a Circuit

#### Materials
- Activity booklet or cards (or index cards)
- Soft drawing pencils (6B is best)
- Pencil sharpener
- Battery and buzzer circuit (9V battery, snap connector, alligator clip, and buzzer)

Battery and circuit materials can be purchased from www.radioshack.com (9v battery #55039849, snap connector #270-324, alligator clip #278-1156).

Buzzer can be purchased from www.newark.com (#89K7985).

#### Notes to the presenter
Before beginning the activity assemble a battery and buzzer circuit for each group. Use the alligator clip to connect the black wire of the battery to the black wire of the buzzer. Then use the red wires to touch the layer of graphite on the paper. The buzzer will not work if it is connected in the wrong direction. See diagram for a visual layout.

#### Staff training resources

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### Tips for leading hands-on science activities

**Greet your guests.** Say “hello,” make eye contact, and smile. People will come over if you look welcoming, available, and friendly.

**Let them do the activity.** As much as possible, let your guests do the hands-on parts of the activity, and let them discover what happens. (If your activity has a surprise, don’t give it away!)

**Encourage exploration.** Provide positive feedback and assistance when people need it, but let them experiment and learn for themselves. Don’t insist people do things the “right” way—sometimes learning how something doesn’t work is just as valuable as learning how it does work.

**Ask questions.** Help people observe and think about the activity. Try to use questions that have more than one answer, such as: “What do you see happening?” “Why do you think that happened?” “What surprised you about what you saw?” “Does this remind you of anything you’ve seen before?”

**Be a good listener.** Be interested in what your guests tell you, and let their curiosity and responses drive your conversation forward.

**Share what you know.** Use clear, simple language. Focus on one main idea—you don’t need to explain everything at once! Keep the information basic for starters, and share more with interested learners.

**Use examples from everyday life.** Familiar examples can help explain abstract concepts. Be aware of different abilities, keeping in mind that children do not have the same skills or vocabulary as adults.

**Offer positive responses.** If people haven’t quite grasped a concept, you might say, “That’s a good guess,” or “Very close, any other ideas?” Never say, “No” or “Wrong.” You can offer hints or suggestions for things to think about or watch carefully.

**Share accurate information.** If you aren’t sure about something, it’s ok to say, “I don’t know. That’s a great question!” Suggest ways that people can learn more, by trying another activity or looking up information at the library or online.

**Remain positive.** Maintain an inviting facial expression, positive tone, and open body language throughout the interaction.

**Thank your guests.** As your interaction ends, suggest other activities that you think your guests might enjoy.

**Have fun!** A positive experience will encourage learning.
Planning materials

Zoom into Nano
Events Guide

Out of School
Programs Guide
Project Opportunities

- NanoDays
- Museum & Community Partnerships Explore Science – Zoom into Nano kits
- Building with Biology kit
- Sustainability in Science Museums kit
- Space and Earth Informal STEM Education
- Transmedia Museum (Frankenstein anniversary)
Thank you NSF and partners!

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Discussion

Are there robots the size of a freckle or hair?
Discussion

Tell us about challenges you have experienced in your collaborations we can discuss strategies for working through them

1. changes in personnel
2. changing organizational priorities (on either side)
3. how do you foster organizational buy-in?
4. characteristics to identify the right partnership right now