2015
NanoDays Planning Guide

NanoDays™
The Biggest Event
for the
Smallest Science!

Credits and Rights

Table of Contents

Marketing Materials Appendix …………………………………………………………………………………………………**appendix**

Introduction

NanoDays

NanoDays is a nationwide festival of educational programs about nanoscale science, engineering, and technology and its potential impact on the future. NanoDays events are organized by partners in the Nanoscale Informal Science Education Network (NISE Net), and take place at over 250 science museums, research centers, and universities across the country from Puerto Rico to Hawaii. NanoDays engages people of all ages in learning about this emerging field of research, which holds the promise of developing revolutionary materials and technologies.

The first nationwide NanoDays events took place in 2008 with more than 100 institutions participating. Since then, NanoDays has grown to over 200 events, and continues to expand. NISE Net is distributing 250 physical kits in 2015.

NISE Network

The Nanoscale Informal Science Education Network (NISE Net) is a national community of researchers and informal science educators dedicated to fostering public awareness, engagement, and understanding of nanoscale science, engineering, and technology.

In 2005, the Network was funded for an initial five-year period through a cooperative agreement from the National Science Foundation (NSF). In 2010, NSF funding was renewed for a second five-year term. During the first five years, the NISE Network built a nationwide collaborative network of informal science educators and research outreach specialists that work together to raise public awareness, understanding, and engagement about nano. The Network has created a range of educational products including: educational programs for a diverse range of audiences; exhibits; media (videos, posters, books and multimedia experiences); a website with a variety of freely downloadable activities (*www.nisenet.org*); a public website (*www.whatisnano.org*); and NanoDays, an annual public outreach event that reaches hundreds of thousands of people each year.

The Network has increased the capacity of the informal science education community to engage the public in nanoscale science, engineering, and technology, and to form partnerships with research centers. At the same time, the NISE Network has developed and distributed educational products designed to raise public awareness and understanding of nanoscale science, engineering, and technology.

How to Participate in NanoDays 2015

Being part of NanoDays is easy: all you need to do is host a day or a week of activities on the theme of nanoscale science, engineering, and technology during NanoDays: March 28 – April 5, 2015. The NISE Network has developed a variety of resources to help you, including NanoDays kits and other products available for download on our website.

Every year, over 200 NanoDays events are held across the country, including hands-on activities and demos, speaker events, theater presentations, art shows, lab tours, lectures, deliberative forums, and science cafes. Through NanoDays, the NISE Network reaches a diverse public audience with a broad geographic distribution, including individuals with disabilities and under-represented demographics in science, technology, engineering, and math (STEM).

Many NanoDays celebrations combine hands-on activities with opportunities to explore current science research. In addition to the materials provided in the NanoDays kit, there are many more educational experiences on the NISE Net website. For example, one popular activity involves visitors working together to build a giant balloon model of a carbon nanotube. Some NanoDays celebrations include science cafés or public forums with discussions about ways that new nanotechnologies interact with and impact our society. Participating universities may host public tours of their laboratories that work with nanoscale science and technology. For more ideas about what you could do for NanoDays, please read through this guide and browse our website: *www.nisenet.org*

NanoDays Kits

Each year, the NISE Network develops and distributes kits with hands-on activities and other educational materials designed to introduce the public to basic concepts of nanoscale science, engineering, and technology. NanoDays kits include all the materials you need to hold a successful event. Each year, the NanoDays kits include both new activities and returning favorites.

NISE Net produces two kinds of NanoDays kits: the physical kit and the digital kit. Both kits provide the same information about hands-on activities and include guides and tips to help you stage your NanoDays events. The physical kit contains all materials and supplies for each activity and includes physical signage. Digital kits include downloadable guides and printable graphic files.

> **Physical kit eligibility:** These kits are designed for informal science educational institutions (such as museums and research center outreach programs) within the United States.

> **Digital kit eligibility:** Free online download is available to anyone on nisenet.org. The digital kit is designed particularly for international locations outside the United States, K-12 educators, libraries, and other educational organizations.

Physical kits are distributed annually on an application basis to informal science educators and research education specialists within the United States, who deliver these programs and activities to public audiences. Kit recipients are expected to provide feedback about their NanoDays events using an online report. Kit recipients also receive support and advice from regional coordinators that are located at key institutions, or hubs, across the country.

The digital kit is available for free download to other educational organizations, including international locations outside the United States, K-12 educators, and libraries. Most NanoDays activities use inexpensive, easy-to-find supplies, making it easy to host a NanoDays event using the digital kit.

This planning guide prescribes very little about the exact nature of your NanoDays event—for a good reason. NanoDays events reflect the capacity, needs, and resources in each local community. There is no one kind of event that is most successful, and each community is encouraged to discover what is best for its own situation and public. Enjoy these materials as you help to celebrate NanoDays: the biggest event for the smallest science!

Key Concepts for Engaging the Public in Nano

Nanoscale science, engineering, and technology (or "nano," for short) is a new, interdisciplinary field of research and development. Just within the past couple decades, scientists have developed methods and tools that allow them to explore some of the most fundamental aspects of our natural world, and to develop new materials and technologies. Some experts think that nanotechnologies may transform our lives—similar to the way that the automobile and personal computer changed the way we live and work.

The great potential of nanotechnology comes from its tiny size. Nano research and development happens at the scale of atoms and molecules. Some things have different properties at the nanoscale, which allows scientists and engineers to create new materials and devices.

But nano isn't just in the lab—we can already find it in our homes, stores, and hospitals. In the next 10 years or so nanotechnologies and materials will become even more present in our lives. We'll find nano in everyday products, such as computers, food, cosmetics, and clothing. Nano might also be part of solutions to big problems, helping address needs such as clean energy, pure water, and cancer treatments.

It's important for everyone to be informed about nanotechnologies, because they'll be an important part of our future. Like any technology, nanotechnologies have costs, risks, and benefits. Since nanotechnologies are still developing, we can influence what they are and how they're used. We all have a role in shaping how nanotechnologies become part of our future.

Nano is a big and exciting field of study, and there's a lot to know. But the most important concepts of nanotechnology are also some of the most important concepts for understanding our natural world, the process of science and engineering, and the ways that society and technologies are interconnected.

To begin to understand nano, we can explore four key concepts:

1. **Small and different:** Nanometer-sized things are very small, and often behave differently than larger things do.

2. **Studying and making tiny things:** Scientists and engineers have formed the interdisciplinary field of nanotechnology by investigating properties and manipulating matter at the nanoscale.

3. **New technologies:** Nanoscience, nanotechnology, and nanoengineering lead to new knowledge and innovations that weren't possible before.

4. **Part of our society and our future:** Nanotechnologies have costs, risks, and benefits that affect our lives in ways we cannot always predict.

These ideas are presented in more detail in the document *Engaging the Public in Nano: Key Concepts in Nanoscale Science, Engineering, and Technology*. It can be found in the NanoDays Kit, as well as in the Professional Development section of the NISE Net website: *www.nisenet.org/catalog/tools_guides/engaging_public_nano_key_concepts*

Planning Timeline

October-December

☐ Apply for your NanoDays kit. Applications open in October.

☐ Award of NanoDays physical kits is typically made in December. You should expect to hear about the status of your kit application toward the end of the calendar year.

☐ Subscribe to the monthly *Nano Bite* electronic newsletter: *www.nisenet.org/nanobite*

☐ Find your regional hub contact and introduce yourself: *www.nisenet.org/contact-nise-net*

☐ Make contact with the individuals and institutions that might be interested in organizing a NanoDays event in your community.

☐ Schedule a kickoff meeting to organize your event. Topics for the agenda include:

> What are your goals for holding a NanoDays event?
> Who is your target audience?
> What kinds of events and activities would reach this audience and meet your goals?
> Who will lead the planning of the event? Who else will be involved?
> How will you communicate with your collaborators?
> What dates will you hold your event?
> Do you need funding to support the event? If so, where will it come from?

☐ Choose a date and add your NanoDays event to your institutional calendars.

January

☐ Plan your event. Your planning process might include creating:

> A brief description of the event (type of activities, dates, times, location)
> A budget (and local fund-raising plan, if necessary)
> An outline of the event goals (and a plan for evaluating how well the event meets the goals)
> A list of tasks and note of who is responsible for each task
> A schedule with the major milestones for preparation
> A marketing strategy

☐ Review your plans with your facility manager and/or health and safety officer. Many facilities have guidelines or restrictions that could affect the logistics of your event or the demonstrations and activities you can include. You might ask about:

> Restrictions related to use of water, open flames, chemicals, or hanging or suspended objects
> Parking for visitors
> Cleaning and sanitation service schedules
> Security needs

February

☐ Your NanoDays kit will arrive in February. Explore the materials in the kit with your staff and your collaborators.

☐ Talk with collaborators about potential sources of staff and volunteers for the event.

☐ Draft an activity floor plan. Keep in mind that some activities need water, some can be messy, and some are better with a place for visitors to sit down.

☐ Identify, invite, and finalize speakers and presenters.

☐ Work with your colleagues to create final marketing materials. Customize the NanoDays press materials, flyers, and ads for your event.

☐ Implement your marketing plan and begin promoting your event. Coordinate efforts among your own institution's marketing and promotional staff, as well as your collaborators' staff.

March

☐ Continue to implement your marketing plan.

☐ Create additional tabletop signs (if you are adding activities beyond those provided in the kit).

☐ Consider creating signs or handouts listing the activities you're offering, as well as their time and location.

☐ Do a test run of the activities.

☐ Hold a staff/volunteer training event in advance or on the day of the event.

☐ Meet with guest speakers about your audience and expectations.

☐ Make final preparations for evaluation of your event (staffing, supplies, floor plan, schedule).

NanoDays week

☐ Hold your NanoDays event!

After NanoDays

☐ Debrief your NanoDays event with your planning team. Identify elements of your event that were successful, as well as things you might want to change next time.

☐ Fill out your NanoDays event report form (*www.nisenet.org/nanodays*).

☐ Document your event for your future use. Save copies of programs, posters, and any newspaper or media coverage of your event.

☐ Share information and images using the NISE Net links on social networking outlets, such as the Network's Facebook page (*www.nisenet.org/social_networking*).

☐ Thank your collaborators, sponsors, and volunteers.

☐ Discuss future plans with collaborators and colleagues. Choose an event date for next year and get the date on relevant community and organizational calendars.

Year-Round

☐ Incorporate the NanoDays materials into other activities. NISE Net partners use the kit materials in seasonal camps, afterschool clubs, science festivals, and other outreach activities.

☐ Check out additional nano programs and activities, media, professional development resources and evaluation tools (*www.nisenet.org).*

☐ Contact your regional hub coordinator to find out about any additional professional development opportunities that may be happening in your region.

☐ Leverage the partnerships you have established through NanoDays for other projects.

☐ Continue to brainstorm ways to sustain your local NanoDays event for years to come.

Future NanoDays

This is the final NanoDays physical kit that will be funded through the current NISE Net award. Beyond 2015, we encourage you to continue to host NanoDays and strengthen local partnerships by using this kit (and any previous kits you have). We've set dates for the next five years to promote national participation in NanoDays in the years to come.

Future NanoDays will be held:
- 2016: March 26-April 3
- 2017: March 25-April 2
- 2018: March 31-April 8
- 2019: March 30-April 7
- 2020: March 28-April 5

The NISE Network leadership is seeking opportunities to continue NanoDays after 2015, so stay tuned for further information!

Finding Collaborators

NISE Net encourages you to collaborate with at least one other institution in your community to plan and conduct your NanoDays event. Partnerships among informal science educators, scientists, and engineers can provide your event with your combined expertise: a sophisticated understanding of how to engage the public, as well as a deep background in the science and technology of nano. NanoDays provides a good opportunity to make new friends and long-term relationships, in addition to established collaborations your institution may already have.

Possible collaborators for your NanoDays event:
- Museums
- Nano research centers
- Individual scientists at a local college or university
- High school science teachers
- Local technology or nanotechnology businesses
- Libraries and schools
- Community organizations involved in youth development and out-of-school programs for the public (Boys & Girls Clubs, Girl Scouts, 4H, afterschool programs)
- Local government agencies

Potential sources of volunteers:
- College students, classes, or clubs with community service requirements
- High school science clubs, or students suggested by local high school science teachers
- Local chapters of professional science and engineering groups, such as:
  - American Indian Science and Engineering Society: *www.aises.org*
  - American Chemical Society (ACS): *www.acs.org*
  - Materials Research Society (MRS): *www.mrs.org*
  - National Action Council for Minorities in Engineering: *www.nacme.org*
  - National Society of Black Engineers (NSBE): *www.nsbe.org*
  - National Organization of Gay and Lesbian Scientists and Technical Professionals: *www.noglstp.org*
  - Society for Advancement of Chicanos and Native Americans in Science (SACNAS): *www.sacnas.org*
  - Society of Asian Scientists and Engineers: *www.saseconnect.org*
  - The Society of Mexican American Engineers and Scientists: *www.maes-natl.org*
  - Society of Hispanic Professional Engineers: *www.shpe.org*
  - Society of Women Engineers (SWE): *www.swe.org*
  - SPIE, the international society for optics and photonics: *www.spie.org*
- Drama and theater students
- Local industry staff and retirees

Regional Hub Contacts can help suggest collaborators: *www.nisenet.org/contact-nise-net*. You can also explore these additional resources:
- "Small Steps, Big Impact: A Guide for Science Museum Leaders Developing Education Outreach Partnerships with University-Based Research Centers": *www.nisenet.org/partner_guide*
- "Bringing Nano to the Public: A Collaboration Opportunity for Researchers and Museums": *www.nisenet.org/bringing_nano_to_the_public*
- Resources for scientists: *www.nisenet.org/rise*

Training Staff and Volunteers

The NanoDays kit includes training materials you can use with the staff and volunteers who will be helping make your event a success. Many local NanoDays events include a variety of partners, including museum staff and volunteers, researchers, students, and others.

The 2015 NanoDays kit includes volunteer and staff training materials:
- Training videos for NanoDays activities
- *NanoDays Orientation* slideshow and notes
- *A Museum Presentation: How NOT to Present and How to Present* videos and guide
- *America's Next Top Museum Presenter* video and guide
- *SPEED-UCATE: How to have an effective science and society conversation* video and guide
- *Tips for Engaging Visitors* and *Tips for Visitor Conversations* reference sheets
- *Tips for Engaging Girls* reference sheet and activity specific tip cards
- *Engaging the Public in Nano* (guide to key concepts) & *NISE Network Learning Framework*
- *Nano 101 for Staff* slideshow and notes
- *Team-Based Inquiry: A practical guide for using evaluation to improve informal education experiences*
- Training videos for Team-Based Inquiry
- *Nanotechnology and Society: A practical guide to engaging museum visitors in conversation*

These resources can help give both new and experienced staff and volunteers an overview of the event and suggestions for engaging their audience in nano. NanoDays training materials are available in the NISE Net website: *www.nisenet.org/nanodays*

Guest Presentations

Expert speakers can be a wonderful addition to your NanoDays event. With extra preparation and support, guest presentations can provide a great experience for both the speaker and the audience.

Here are some suggestions to help make things go smoothly:
- When inviting scientists to participate, be clear about their role and type of experience you're seeking.
- Familiarize invited guest speakers with your expected audience, including anticipated ages, level of background knowledge.
- Let speakers know about any expectations you may have related to audience involvement.
- Discuss the content and length of the planned presentation.
- Share the following page, "Tips for guest speakers," with your presenter. You might also share some of the other NanoDays training materials.
- Encourage your invited speaker to use plain language, avoiding jargon and technical terms.
- Discuss details about your facility, including room size, seating style, and audio-visual equipment.
- Ask to review a draft slideshow or notes in advance and discuss the planned presentation together.
- Schedule time before the presentation to work out any audio-visual or logistical issues.
- Prepare questions that may help stimulate audience discussion.

Tips for guest speakers

Public audiences find emerging science and technology interesting. Keep in mind, however, that only a small percentage of the population knows much about this topic. Here are a few pointers for communicating with the public about nanoscale science, engineering, and technology.

Know your audience
The more you know about your audience, the better you can adapt your presentation to their interests. Keep in mind the diversity of your audience's experience and backgrounds. Remember that many NanoDays visitors attend in family groups, which can include a wide range of ages.

Keep the message simple
Come up with one "big idea" you want the audience to take away from the experience, and make sure your presentation reiterates and reinforces this idea in different ways. Define your terms, avoiding jargon and acronyms as much as possible. Check in with your audience periodically to see if they're following you.

Use familiar analogies
Use comparisons to everyday experiences. Explain how the topic relates to something that's been in the news or in popular culture.

Use relative size and scale
Focus on relative size and scale rather than exact measurements. Consider using parts of the human body to explain relative scale.

Use visuals
Simple images and models will reinforce and clarify your message.

Use several modes of presentation
In addition to talking, you can include demonstrations, videos, and pictures. You can involve the audience by providing objects to pass around, asking questions, doing brief experiments, providing hands-on activities, and playing games.

Involve the audience in the processes of science
Encourage your audience to observe, predict, and explore by asking them questions:
    "What do you think will happen when . . . ?"
    "Were you surprised?"
    "Why do you think that happened?"
    "What if you tried . . .?"
    "Can you think of any practical uses for this?"
    "What about unintended consequences?"

Be friendly and approachable
Remember to make eye contact, smile, and let the audience know who you are. If you're a scientist, consider including personal stories about your work life and your career decisions.

Be prepared to answer common questions
But don't be afraid to let your audience know if you don't know the answer to their question.

Share ways to learn more
Remember that your presentation is only one exposure that people will have to nano—it's not the end of their learning. Help the audience connect to other opportunities for more exploration. A good place for them to start is *www.whatisnano.org.*

Additional Training Resources

Some of the volunteers and staff for your event may be unfamiliar with nanoscience and engineering, and would benefit from a basic introduction to nano. The NISE Network website features a range of online resources for professionals. We also have a public website *www.whatisnano.org* with direct-to-public resources created by the NISE Network and other institutions, which we encourage you to share with your staff, volunteers, and public audiences.

There are many training resources available through *www.nisenet.org*, including some that may be more appropriate for existing museum staff and volunteers who may be unfamiliar with nano content. Keep in mind that some of our public educational products that can be fun ways to introduce staff and volunteers to nano. Some training materials you might explore include:

Public website
www.whatisnano.org

Professional Development
http://www.nisenet.org/About_Professional_Development

Guidelines for creating accessible programming
www.nisenet.org/catalog/tools_guides/universal_design_guidelines_programs

Guidelines for creating bilingual materials
www.nisenet.org/catalog/tools_guides/bilingual_design_guide
www.nisenet.org/catalog/tools_guides/translation_process_guide

Improv exercises
www.nisenet.org/catalog/tools_guides/improv_exercises

Nanotechnology and society training resources
www.nisenet.org/catalog/tools_guides/nano_society_training_materials

Recordings of past Online Workshops
www.nisenet.org/search/product_category/online-workshops-31

NanoVenture
www.nisenet.org/catalog/programs/nanoventure

Nano Around the World card game
www.nisenet.org/catalog/programs/nano_around_world

Especially for scientists:

Mastering Science and Public Presentations
www.nisenet.org/catalog/tools_guides/mastering_science_public_presentations_video

Sharing Science Workshop and Practicum
www.nisenet.org/catalog/tools_guides/sharing_science_workshop_practicum

REU Science Communication Workshop
www.nisenet.org/catalog/tools_guides/reu_science_communication_workshop

Ideas for Your NanoDays Event

NISE Net partners have contributed many ideas that might inspire you as you start to think about your NanoDays event. In general, the more you can tailor your NanoDays event to the unique strengths and resources of your community, the more compelling it will be to your audience.

Offer a day or week of activities
In addition to the materials contained in your NanoDays kit, ideas for programs and demonstrations can be found online: *www.nisenet.org/About_Programs*

Include additional activities related to nano and society
NISE Net has developed a set of new activities that encourage conversation about nano and society between museum visitors and facilitators: *www.nisenet.org/community/events/other/nano_society_workshop*

Schedule a public presentation or demonstration by a scientist
If you don't already have a local connection, your regional hub leader can help you find appropriate scientists or student groups: *www.nisenet.org/contact-nise-net*

Host a theater presentation
Work with local actors or theater students to do a creative performance addressing nano themes. NISE Net has theater programs designed for families, as well as programs that focus on issues suitable for adult audiences. Scripts and videos are available online: *www.nisenet.org/search/product_category/theater-and-stage-presentations-14*

Offer a science café
A science café is an event that brings scientists and an adult audience together in an informal setting like a restaurant, pub, or coffee shop: *www.nisenet.org/catalog/tools-guides/science-cafe-guide*

Host a forum
Invite an adult audience to learn about nanoscale science and engineering, and then participate in small-group discussions about the societal implications of nanotechnology: *www.nisenet.org/About_Programs#Forums*

Set up a magnification station
Set out interesting objects for visitors to explore with magnifying glasses and microscopes. Share images of a world too small to see with just our eyes. A collection of images is available here: *www.nisenet.org/search/product_category/scientific-images-21*

Create a reading area
Create a small quiet spot at your event displaying books for children and adults on nano topics; some children's books are suitable for read-aloud story time presentations. A list of suggested books is available here: *www.nisenet.org/catalog/tools_guides/selected_books_about_nano*

Make imaginary "nanobots" from scrap materials
Encourage visitors to create models of future nano inventions. Supply discarded or recycled materials (cardboard, paper, containers) along with craft materials (scissors, glue, string, tape) and let visitors imagine the possibilities. You can use the following program to help guide the activity: *www.nisenet.org/catalog/programs/robots_people_nanodays_2014*

Show educational videos
There are many great videos available for public audiences in the NISE Net website:
www.nisenet.org/search/product_category/videos-22
DragonflyTV also has a series focusing on nano:
www.pbskids.org/dragonflytv/nano

Host an open house at a nano research center
An open house event could include tours of laboratories, demonstrations and lectures by research faculty, and group activities led by students and faculty.

Display images of the nano world created by scientists
Many scientists have created beautiful images of nanoscale objects. You can invite a scientist or a lab to display their imagery.

Meet a scientist
Create a space at your event where visitors can talk informally with a nanoscientist and ask questions. Prepare some signage and questions to help get discussions started. Or try Scientist Speed Dating:
www.nisenet.org/catalog/programs/scientist_speed_dating

Create a collaborative nano stained glass artwork
Create a collaborative stained glass window with pre-made nanoparticle solutions containing silver or gold and have visitors create a take-away stained glass card:
www.nisenet.org/catalog/programs/nanoparticle_stained_glass_cart_demo
www.nisenet.org/catalog/programs/nanoparticle_stained_glass_classroom_program
www.nisenet.org/blog/post/nano-stained-glass-collaboration-madison-wi

Additional Resources

The NISE Network website features a variety of online resources designed for professionals. The website includes educational experiences for you to implement with the public, as well as resources to prepare you and your staff. We also have a public website (*whatisnano.org*) with resources created by the NISE Network and other institutions, which we encourage you to give to your public audiences.

NISE Network Website

Programs and Activities
www.nisenet.org/About_Programs

Exhibits
www.nisenet.org/About_Exhibits

Media
www.nisenet.org/About_Media

Professional Development
www.nisenet.org/About_Professional_Development

Evaluation and Research
www.nisenet.org/About_Evaluation_Research

NanoDays
www.nisenet.org/nanodays

Spanish translations of NanoDays and other educational products
www.nisenet.org/catalog/spanish

Public Websites

whatisnano.org
The NISE Network public website is a great place to send your visitors for more information about nano that they can explore after attending your event: *www.whatisnano.org*

DragonflyTV Nano
This kid-friendly site includes online television episodes, interviews with nanoscientists, online games, and activities to try at home: *pbskids.org/dragonflytv/nano*

Evaluating Your Event

The activities and materials included in your NanoDays kit have been evaluated with public audiences and reviewed by scientists and informal science educators.

The NISE Network also evaluates the impact of NanoDays as a national event. Findings from NISE Network evaluation studies are used to improve NanoDays materials, and to inform the Network of its impact on the public. As a part of the *Summative Study of NanoDays 2014 Events*, the evaluation team examined the reach of NanoDays nationally, and studied the impact of NanoDays on public and volunteer awareness and understanding of nano. Results from this study indicate the following:

- The estimated reach of NanoDays 2014 is over 482,000 encounters.
- NanoDays events are successful in providing event attendees with an engaging experience and in promoting learning of nano concepts.
- NanoDays events are also successful in providing event volunteers with an engaging experience and in promoting learning of nano concepts.
- Volunteering at NanoDays positively impacts interest in STEM activities/careers and confidence around engaging the public in nano.

Further information can be found in the forthcoming summative evaluation report, which will be available at: *www.nisenet.org/About_Evaluation_Research*

Additionally, you may want to evaluate your local NanoDays event against your own event goals. Evaluating your local NanoDays event has several benefits. It can help clarify your goals, provide information that you can use to improve your event next year, gain funding or sponsorship for projects, and inform your understanding of your audience and the impact of your work. If you're interested in learning more about evaluation, here is a selection of resources to help you get started.

NISE Network evaluation efforts
Information about NISE Net evaluation: *www.nisenet.org/About_Evaluation_Research*

Team-Based Inquiry
Team-Based Inquiry (TBI) is a practical approach to empowering education professionals to get the data they need, when they need it, to improve their products and practices and, ultimately, more effectively engage public and professional audiences. The TBI process involves an ongoing cycle of inquiry: question, investigate, reflect, and improve. The Team-based Inquiry guide (included in the NanoDays kit) explains each step of the TBI process and features ways TBI is used in the NISE Network to improve educational experiences and professional practice:
www.nisenet.org/catalog/tools_guides/team-based_inquiry_guide

NISE Network program evaluation tools
Including guidelines and templates:
www.nisenet.org/catalog/tools_guides/nise_network_program_evaluation_tools_package

Additional Resources

- **Informalscience.org**
  Informal education resources: *informalscience.org*

- **The National Science Foundation**
  Guidebook on project evaluation for researchers:
  www.nsf.gov/pubs/2002/nsf02057/nsf02057_1.pdf

- **The University of Wisconsin Extension**
  Guides to planning and implementing evaluations:
  www.uwex.edu/ces/pdande/evaluation/evaldocs.html
  learningstore.uwex.edu/Planning-a-Program-Evaluation--P1033C0.aspx

NanoDays Reporting

If you host a NanoDays event, we ask you to provide a brief report about your event and your experience. You are required to report on your event if you receive a physical kit from the Network. You'll find a link to an online reporting form on *www.nisenet.org/nanodays*. You typically have a month following NanoDays to fill out your report form.

The Network evaluation team and NanoDays team use the NanoDays report to assess the current year's event and to plan for NanoDays in coming years. Information from past NanoDays evaluations have informed to changes in the kit's educational materials and in the other kinds of resources NISE Net provides. If you've participated in NanoDays before, you may have filled out a NanoDays report in the past. A new report is required each year you participate.

Only one report needs to be submitted per NanoDays event. If you co-hosted an event with another organization, using a single physical kit, only one organization needs to fill out the online report.

While the NanoDays report changes slightly from year to year, we are generally interested in learning what your NanoDays event was like, whom you collaborated with to plan and host the event, and how we might improve NanoDays in the future. In past years, questions have included: which activities you included in your event (including those from the kit, from other sources, and those you developed yourself); how long your event lasted; which other organization you worked with to host NanoDays; what goals your institution had for your NanoDays event; and how the NISE Net might help you meet those goals.

If you have more information about a NanoDays event that you think was particularly successful, or a lesson learned, we're always interested in sharing those stories with the wider Network. Please contact your regional hub leader or send a message to *info@nisenet.org* to tell us about it.

Promotional and Marketing Materials

We've put together a collection of resources to help you promote and market your NanoDays event and other nano educational activities. We've designed everything to be as easy to use as possible, by creating templates, common software platforms, and simple instructions for adding your information and logos to generate attractive posters, banners, T-shirts, and other marketing materials.

We hope that you will use these resources so that your event helps us build a national awareness and a common "brand" for NanoDays and nano public outreach that we can all benefit from. However, you may also use your own established materials and logos.

All of the artwork and images shown on the following pages are available in electronic format on the USB thumb drive included in your kit or online at *www.nisenet.org/nanodays*. We've provided bilingual Spanish and English options to help promote bilingual events. For questions regarding the usage of the NanoDays logo or other marketing materials, please send an email to *nanodays@nisenet.org*.

Writing Guidelines

We use "NanoDays" courtesy of North Carolina State University, which owns the trademark for this term. When referring to NanoDays in writing, please use the capital "N" and the capital "D," with other letters lower-case, and include the "TM" as appropriate.

If you refer to the Nanoscale Informal Science Education Network (NISE Net) in writing, please capitalize the "NISE" and the "N" in Net: NISE Network, or NISE Net.

Logos

NISE Net has several NanoDays logos available for use in graphic materials. Please note that in 2011, we created new NanoDays logos. All NISE Net NanoDays materials are available with the current logo, including materials from earlier kits, on the website at *www.nisenet.org/nanodays*.

If you create your own NanoDays materials, we prefer you use the current logo. If you already have existing materials with the old logos, feel free to continue to use them. NanoDays logos are included in the Marketing Materials Appendix of this guide and on the USB thumb drive.

Fonts

The NanoDays font is Calibri. Arial is a suggested alternative.

Colors

Green, purple, and white are the primary colors of the NanoDays color palette. Tints from 100% to 10% work well, and give you a range of design options. The color palette is specified in the Marketing Materials Appendix of this guide.

Web Icons

We have created a set of web icons for the NISE Net website (*www.nisenet.org*) and the public website (*www.whatisnano.org*). Please use these embeddable icons to link to our websites from your institution's page. Icons are available at: *www.nisenet.org/PRmaterials*

Press Photos

We have provided a selection of press photos that you can use to market your NanoDays events (as well as other events and materials related to NISE Net). These photos are free for use under a Creative Commons Attribution-NonCommercial 3.0 Unported License. Please see the Marketing Appendix for information on how to credit the photographs appropriately.

Banners

Two large NanoDays banners are included in your NanoDays kit (English and bilingual Spanish-English). You can use adhesive vinyl lettering to customize the banner with your event date, times, location, and other information.

If you would like to print additional banners with your customized event information, it's easy to do. Use the banner template on the USB thumb drive, then send your art to one of the many online banner-printing companies or take it to your local printer. A 3' x 5' banner (vinyl, with grommets) should cost about $100.

NSF Acknowledgement of Support

The NISE Network, NanoDays, and the creation of this kit are all funded by the National Science Foundation under Award Nos. 0532536 and 0940143. Although your event might not receive direct NSF funding, if you use our kit materials or produce deliverables based on the kit materials, you should follow NSF guidelines for acknowledging NSF support.

Statement for deliverables:

> *This project was based on work supported by the National Science Foundation under Award Nos. 05322536 and 0940143.*

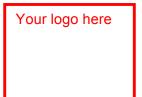Additional statement for publications:

> *Any opinions, findings, and conclusions or recommendations expressed in this work are those of the authors and do not necessarily reflect the views of the Foundation.*

The NSF logos are available in a variety of colors and file formats that can be downloaded from: *www.nsf.gov/policies/logos.jsp*. Here are two basic NSF logos:

Sample Press Release

Your logo here

NanoDays™
The Biggest Event for the Smallest Science!

Date:
Contact:
Phone:
Email:

Celebrate NanoDays™ 2015 [at Name of your organization]

[Insert your local NanoDays location, dates, and specific activity information here].

NanoDays at [name of your organization] is part of a nationwide festival of educational programs about nanoscale science and engineering.

NanoDays is organized by the Nanoscale Informal Science Education Network (NISE Net), and takes place nationally from March 28 – April 5, 2015. This community-based event is the largest public outreach effort in nanoscale informal science education and involves science museums, research centers, and universities from Puerto Rico to Alaska.

NanoDays celebrations bring university researchers together with science educators to create learning experiences for both children and adults to explore the miniscule world of atoms, molecules, and nanoscale forces. Most NanoDays events combine fun hands-on activities with presentations on current research. A range of exciting NanoDays programs demonstrate the special and unexpected properties found at the nanoscale, examine tools used by nanoscientists, showcase nano materials with spectacular promise, and invite discussion of technology and society.

The local community can enjoy many of these activities. Visitors can experience the power of science fiction storytelling—creating their own imagined future full of new nanotechnologies. Hands-on activities invite visitors to explore polarized light, investigate how scientists use special tools to study tiny things, and imagine how nanotechnology could change how we eat! Other activities include experimenting with heat transfer and completing an electrical circuit using the world's thinnest material. [Edit for your institution]

More about Nano and NISE Network

At the nanoscale—the scale of atoms and molecules—many common materials exhibit unusual properties. Our ability to manipulate matter at this size enables innovations that weren't possible before. Nanotechnology is revolutionizing research and development in medicine, computing, new materials, food, energy, and other areas.

Nano will affect our economy, the environment, and our personal lives. Some scientists think that future nanotechnologies and materials could transform our lives as much as cars, the personal computer, or the Internet! But the costs, risks, and benefits of this new technology can be difficult to understand, both for experts and for the general public. The NISE Network helps museums, research institutions, and the public learn from each other about this emerging field so that together we can make informed decisions.

The Nanoscale Informal Science Education Network (NISE Net) is a national community of researchers and informal science educators dedicated to fostering public awareness, engagement, and understanding of nanoscale science, engineering, and technology. The NISE Network community in the United States is led by 12 organizations, and includes hundreds of museums and universities nationwide. NISE Net was launched in 2005 with funding from the National Science Foundation, and received a five-year renewal in 2010.

Through products like NanoDays, the NISE Network is actively building partnerships between science museums and research centers to increase their capacity to engage the public in learning about nanoscale science and engineering.

For more information about NISE Net or to download a digital NanoDays kit please visit**:**
www.nisenet.org/nanodays.

For more information about Nano please visit:
www.whatisnano.org

Photo Release Form

Most institutions require that some kind of photo release form be signed in order for you to circulate photos from your event in any way. Whether or not this is a formal policy in your institution, you should always ask for permission before photographing participants, especially children. Getting signed releases gives you the flexibility to use your photos in newsletters, reports, and other settings.

We welcome you to share photos from your event with the network, with the following caveat: in order to be able to use and share photos of local NanoDays events, we must have a release signed by each person in the photo. In the NISE Network, photos are often shared and used by multiple institutions, so we need permission for all institutions in the NISE Network to use the image (not just your own institution). We understand that for many of our partners, it is not possible to get release forms from every person photographed or recorded. For this reason, the NISE Net does not require or expect photographs of your events.

The NISE Net photo release form is included on the next page. Fill in your organization's name in the second blank on the first line, then copy the form to use at your event. When you are asking visitors to fill out the form, be sure to explain that they can choose **not** to have their photograph or their child's photograph taken and still participate in the activity.

Here are a few tips to ensure you get a release from every person you photograph:
- If you are using a photographer for your NanoDays event, be sure to explain to them that they will need to get consent before taking photographs.
- It's helpful to have the releases and pens on a clipboard or two that you can hand to the visitor.
- In larger settings, or spaces with a lot of activity, consider assigning a staff person to join the photographer and ask visitors to sign the release before the photographer takes pictures. This person can ensure that no photographs are taken without consent, and can also ask the photographer to delete any pictures from their camera of visitors who did not consent.
- Jot down a description of the person on their release form (for example, "young girl, brown hair, yellow shirt"). This can help you match releases to photos later on.
- If you are hosting an event with nametags and registration, you can ask visitors to fill out the release when they register. If they have consented to have their photo taken, give them a sticker for their nametag. Then the photographer can take photos only of people with the stickers.

If you are able to get signed releases for your photos, please share them with us! You may send a CD with photos along with a scan of the releases to the Museum of Science at:

> NISE Network
> Museum of Science
> 1 Science Park
> Boston, MA 02114

Questions regarding acknowledgements or credits can be directed to *info@nisenet.org.*

Museum of Science and NISE Network
Photo Consent and Release

I, _____, hereby authorize _____ and the Museum of Science, Boston, MA (the "Museum") as agents acting for and on behalf of the Nanoscale Informal Science Education (NISE) Network, and its agents, representatives, assigns, successors in interest and licensees, to photograph, audiotape, and/or videotape me and grant the Museum and the NISE Network the irrevocable right to use my photograph, audio recording, video recording, or any reproduction or modification thereof (the "Photograph", "Audio, and/or "Video"), in any manner or medium throughout the world an unlimited number of times in perpetuity for advertising, trade, promotion, exhibition or any other lawful purpose.

I understand that I will not receive any monetary compensation for the permissions I am granting herein. I hereby waive any right of inspection of approval of the uses to which the Museum and the NISE Network may put the Photograph, Audio, and/or Video. I acknowledge the Museum and the NISE Network will rely on this permission and hereby release and discharge the Museum and the NISE Network from any and all claims and demands arising out of or in connection with the Photograph or the exercise of the permissions granted here, including any and all claims for libel, invasion of privacy or emotional distress.

I understand that I cannot withdraw my consent after I sign this form and that this consent and release is binding on me and my heirs, legal representatives and assigns.

YES   NO   (please check)

☐   ☐   I grant permission for Photographs to be collected and used by NISE Network

☐   ☐   I grant permission for Audio be collected and used by NISE Network

☐   ☐   I grant permission for Video to be collected and used by NISE Network.

Date: _____ Signature: _____

Address: _____

Telephone Number: _____

If the individual named above is under 18 years of age, please complete the following:

I am the parent or legal guardian of the individual named above, and I hereby sign this Media Consent and Release on behalf of such individual in accordance with the statements above.

Name: _____

Date: _____ Signature: _____

Address: _____

Telephone Number: _____

2015
Marketing Materials Appendix

NanoDays™
The Biggest Event
for the
Smallest Science!

Photograph Credit and Acknowledgment

We encourage you to use the NISE Net publicity photos in marketing NISE Net related events, and in creating NISE Net related materials. These photos were taken at the Sciencenter in Ithaca NY, the Science Museum of Minnesota in Saint Paul, MN , the Oregon Museum of Science and Industry in Portland, OR, and the Museum of Science in Boston, MA.

Please see image thumbnails for credit information.

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PMS 2627

C	77	R	73
M	100	G	23
Y	0	B	109
K	31		

PMS 390

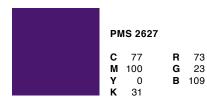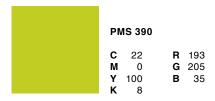| C	22	R	193
M	0	G	205
Y	100	B	35
K	8		

NanoDays Fonts

Calibri

NanoDays is a nationwide festival of educational programs about nanoscale science and engineering and its potential impact on the future.

ABCDEFGHIJKLMNOPQRSTUVWXY
abcdefghijklmnopqrstuvwxyz

**ABCDEFGHIJKLMNOPQRSTUVWXY
abcdefghijklmnopqrstuvwxyz**

Arial

NanoDays is a nationwide festival of educational programs about nanoscale science and engineering and its potential impact on the future.

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abcdefghijklmnopqrstuvwxyz

**ABCDEFGHIJKLMNOPQRSTUVWXY
abcdefghijklmnopqrstuvwxyz**

Source Sans Pro

free download from www.google.com/fonts

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abcdefghijklmnopqrstuvwxyz

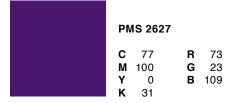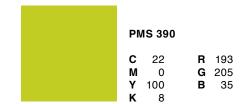**ABCDEFGHIJKLMNOPQRSTUVWXY
abcdefghijklmnopqrstuvwxyz**

NanoDays Colors

PMS 2627

C	77	R	73
M	100	G	23
Y	0	B	109
K	31		

PMS 390

C	22	R	193
M	0	G	205
Y	100	B	35
K	8		

NanoDays Customizable Ads

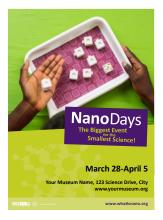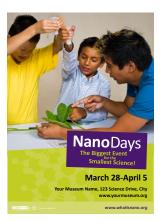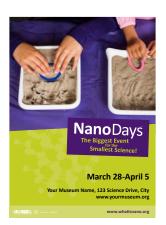horizontal, 7" x 3", color, pdf and Illustrator files provided

NanoDays Customizable Ads

vertical, 4" x 5.5", color, pdf and Illustrator files provided

NanoDays Customizable Ads

vertical, 3.5" x 8.5", color, pdf and Illustrator files provided

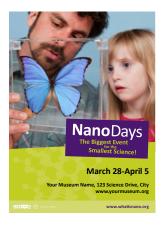# NanoDays Customizable Ads

various sizes, black and white, pdf and Illustrator files provided

NanoDays Bilingual Customizable Ads

various sizes, color, pdf and Illustrator files provided

NanoDays Ready-to-go Ads

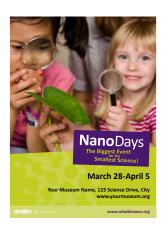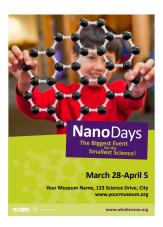various sizes, color and black and white, jpeg and pdf files provided

NanoDays Customizable Posters

11" x 17", color, pdf and Illustrator files provided

NanoDays Ready-to-go Posters

11" x 17", color, jpeg and pdf files provided

NanoDays Materials

Storytelling game

Dress up card

Activity signs

Exploring Materials—
Graphene

Can you make the world's thinnest material?

whatisnano.org

Exploring Products—
Kinetic Sand

Why does this dry sand seem wet?

whatisnano.org

How small is nano?

The world is full of things of all different sizes! In your everyday life, you come across things in at least three different size scales: the *macroscale*, the *microscale*, and the *nanoscale*.
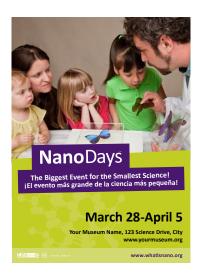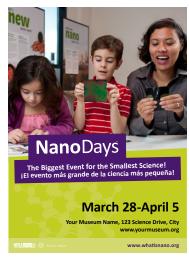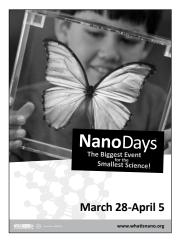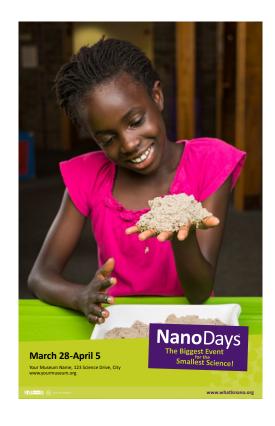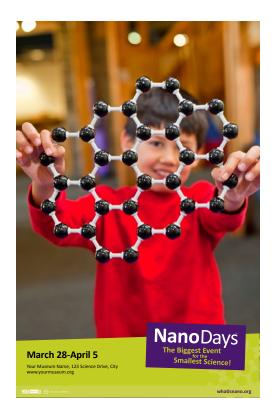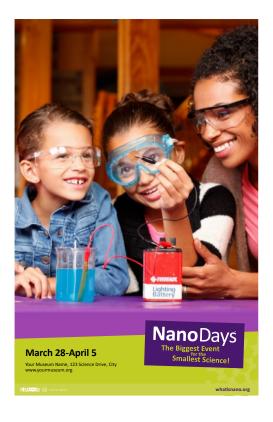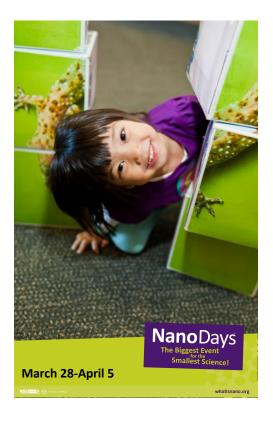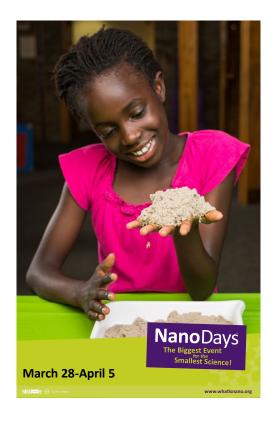
Child
A child is about 1 meter tall
1 meter = 1,000,000,000 nm (1 billion nanometers)

Hand
A hand is about 1 decimeter wide
1 decimeter = 100,000,000 nm (100 million nanometers)

Pinky Finger
A pinky finger is about 1 centimeter wide
1 centimeter = 10,000,000 nm (10 million nanometers)

Freckle
A freckle is about 1 millimeter wide
1 millimeter = 1,000,000 nm (1 million nanometers)

Strand of Hair
A hair is about 0.1 (one tenth) of a millimeter wide
0.1 millimeter = 100,000 nm (100 thousand nanometers)

Macroscale
The macroscale includes things we can see with our eyes, from big to small. There are lots of ways to measure macroscale things, including *meters*. Meters are about the same size as a yard.

Kids around six years old are about a meter tall. A strand of hair is just a fraction of meter, 0.1 millimeters.

Red Blood Cell
A red blood cell is about 10 micrometers wide
10 micrometers = 10,000 nm (10 thousand nanometers)

Bacteria
A bacteria cell is about 1 micrometer wide
1 micrometer = 1,000 nm (1 thousand nanometers)

Virus
A virus is about 0.1 (one tenth) of a micrometer wide
0.1 micrometer = 100 nm (1 hundred nanometers)

Microscale
The microscale is smaller than the macroscale. To see microscale things clearly, we need tools like microscopes. We measure them using *micrometers*.

A micrometer is a millionth of a meter. Red blood cells are about 10 micrometers wide.

Cell Membrane
A cell membrane is about 10 nanometers wide
10 nanometers = 10 nm

Sugar Molecule
A sugar molecule is about 1 nanometer wide
1 nanometer = 1 nm

Atom
An atom is about 0.1 (one tenth) of a nanometer wide
0.1 nanometer = 0.1 nm

Nanoscale
There's an even smaller scale, the nanoscale! Nanoscale things are so tiny, we can't see them with just our eyes, or even with light microscopes. We need special tools to make images of them. We measure nanoscale things using *nanometers*.

A nanometer is super small— a billionth of a meter! DNA is just two nanometers wide.

What's a nanometer? A nanometer is a billionth of a meter. That's really tiny! Nanometers are used to measure things that are too small to see, like parts of a cell or DNA.

Nano is
in nature and technology

Climbing robots imitate geckos

Tiny "hairs" on their feet let geckos walk on walls

Nano is studying and making tiny things

whatisnano.org · Grant No. 0940143

Posters

Web Icons

110 x 30 pixels

50 x 50 pixels

40 x 40 pixels

NanoDays Press Photos

NISE_Net_press_photo_0003.jpg
Credit: Gary Hodges, Sciencenter

NISE_Net_press_photo_0005.jpg
Credit: Gary Hodges, Sciencenter

NISE_Net_press_photo_0011.jpg
Credit: Gary Hodges, Sciencenter

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Credit: Gary Hodges, Sciencenter

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Credit: Emily Maletz

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Credit: Emily Maletz

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Credit: Museum of Science

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Credit: Museum of Science

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Credit: Gary Hodges, Sciencenter

NISE_Net_press_photo_0158.jpg
Credit: Emily Maletz

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NISE_Net_press_photo_0201
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