



2018

Explore Science: Let's Do Chemistry

Planning and Partnership Guide

www.nisenet.org/chemistry-kit

NISE NATIONAL INFORMAL
STEM EDUCATION
NETWORK



www.nisenet.org



This report was based on work supported by the National Science Foundation under Award Number 1612482. Any opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect the views of the Foundation.

Copyright Sciencenter, Ithaca, NY
July, 2018



CC BY-NC-SA 3.0

Published under a Creative Commons Attribution-Noncommercial-Share Alike license:

creativecommons.org/licenses/by-nc-sa/3.0/us/

You are free to copy, adapt, or distribute this guide and/or the text and images contained in it for educational, nonprofit purposes. The guide is available for download from www.nisenet.org. When making copies or excerpts, please include the copyright and credit information above. If adapting the contents, please cite the guidebook as a source.

CONTENTS

INTRODUCTION	4
REQUIREMENTS	7
NATIONAL CHEMISTRY WEEK	8
PLANNING TIMELINE	11
COLLABORATIONS AND FINDING LOCAL EXPERTS	15
TRAINING STAFF AND VOLUNTEERS	18
ADDITIONAL RESOURCES	24
EVALUATING YOUR EVENT	25
LET'S DO CHEMISTRY EVENT REPORT	26
STAYING IN TOUCH	27
PROMOTIONAL AND MARKETING MATERIALS	28

INTRODUCTION

Welcome to *Explore Science: Let's Do Chemistry!* The National Informal STEM Education Network (NISE Net) in collaboration with the American Chemical Society has developed a new set of engaging, hands-on chemistry experiences that promote positive attitudes toward learning about chemistry. We have developed this guide to help you plan successful chemistry-themed events, to highlight local partnership opportunities, and to share professional development resources.

Project Goals and Activities

The goal of *Explore Science: Let's Do Chemistry* is to promote positive attitudes toward learning chemistry, by engaging multiple and diverse public audiences all across the United States in facilitated, hands-on chemistry activities. Specifically, the project is focused on identifying evidence-based design strategies that increase participants' interest in chemistry, their perception of its relevance to their lives, and their sense of self-efficacy (or ability) to learn chemistry.

The National Informal STEM Education Network (NISE Network) and the American Chemical Society (ACS) worked together on this project to encourage multiple and diverse public audiences to find chemistry interesting, understand its connection to their lives, and develop a sense of confidence and self-efficacy about learning, using, and talking about chemistry. Throughout this guide, we'll refer to the project as *Let's Do Chemistry*—the tagline for the kit of materials and resources that the team created.

Major project activities include a research study on public attitudes toward chemistry in the United States; a research study articulating design strategies for encouraging interest, relevance, and self-efficacy and supporting the development of exemplary hands-on activities; and the production of a toolkit of activity materials and professional resources. Through this project, researchers are also collecting data about the impact of the kit materials on both public audiences and participating educators and chemists.

Let's Do Chemistry materials are designed to help museums and chemists collaborate in order to offer National Chemistry Week activities and other chemistry related activities throughout the year that encourage positive attitudes toward learning chemistry. These chemistry experiences have been developed with three main public learning outcomes:

- Increased *interest* in the field of chemistry.
- Increased understanding of the *relevance* of chemistry to their lives.
- Increased feelings of *self-efficacy* about doing chemistry.

All the materials developed for the *Let's Do Chemistry* kit are based on evidence about what works to increase museum visitors' interest, relevance, and self-efficacy about learning chemistry. You can learn more about the project research and the design of the activities in the *Let's Do Chemistry: A Framework and Strategies to Encourage Positive Attitudes Toward Learning Chemistry in Museums and Informal Settings* guide included in the kit.

Project Partners

The *Let's Do Chemistry* kit is an outcome of the ChemAttitudes project is funded by the National Science Foundation and is led by:

- Museum of Science, Boston, MA

In collaboration with:

- Science Museum of Minnesota, Saint Paul, MN
- American Chemical Society (ACS)
- Sciencenter, Ithaca, NY
- University of Wisconsin-Madison, Madison, WI
- National Informal STEM Education Network

The NISE Network

The National Informal STEM Education Network (NISE Net) is a community of educators and scientists dedicated to supporting learning about science, technology, engineering, and math (STEM) across the United States. The Network creates resources and coordinates activities on a national and regional level, while Network partners coordinate and implement project activities locally. We achieve our reach and impact through the participation of over 600 partner organizations in Network activities, including museums, universities, and other organizations that provide informal learning opportunities for public audiences. Through the diversity of our partner organizations, the Network has broad geographic and demographic reach across the country. NISE Network partners engage public audiences in learning about current science, technology, math, and engineering in all 50 states and Puerto Rico. Together, Network partners engage 11 million people each year in high-quality STEM learning!

Our products are created through an iterative, collaborative process that involves scientists, informal science educators, and targeted public audiences. The nisenet.org website is an online digital library of public educational products and tools designed for educators and scientists.

American Chemical Society

The American Chemical Society (ACS) is the world's largest scientific society, with more than 150,000 members in over 140 countries. The society's mission is to advance the broader chemistry enterprise and its practitioners for the benefit of Earth and its people. ACS' vision is to improve people's lives through the transforming power of chemistry. ACS is a leading publisher of authoritative scientific information, and provides professional development and resources to help chemists navigate the global economy. The society also supports teaching and learning for students of all ages through grants and scholarships, and encourages investments in STEM education, research, and innovation. The American Chemical Society promotes National Chemistry Week and other public educational activities.

Let's Do Chemistry Kit and Activities

Two hundred and fifty (250) *Let's Do Chemistry* physical kits were awarded to successful applicants from eligible organizations across the country, and consist of hands-on activities, safety equipment and information, professional development materials, and marketing and promotional resources. The physical kits contain all materials and supplies for each activity (except for dry ice!) and include printed signage and graphics. The activities work best for family audiences, with a range of experiences appropriate for participants ages six through adult.

How to Participate

These activities can be used throughout the year during any number of chemistry specific or STEM-themed annual events (see the Year-Round section in the timeline). We strongly encourage collaboration between museums, local chemists, and chemistry students to support the American Chemical Society's National Chemistry Week and similar events this year and into the future. In 2018 National Chemistry Week is held October 21-27. Through local partnerships between NISE Network partners and ACS members, *Let's Do Chemistry* will have a national impact across the United States.

In addition to the physical kits, all digital materials will be made available online for free download in fall of 2018 at <http://www.nisenet.org/chemistry-kit>.

Even if you weren't awarded a physical toolkit, you can still download and use the digital materials to engage public audiences in chemistry. If you download the materials, you're not required to fill out a report, but we'd still love to hear from you.

This planning and partnership guide prescribes very little about the exact nature of your *Let's Do Chemistry* event—for good reason. Your event will reflect the capacity, needs, and resources of your community. There is no one kind of event that is most successful, and each community is encouraged to discover what is best for it's our situation and public audience. Enjoy these materials and thank you for helping to encourage positive attitudes toward learning chemistry!

REQUIREMENTS

Host an Event

All *Let's Do Chemistry* physical kit recipients are required to host an event in October – December, 2018. Public events can be stand-alone events OR you can incorporate your event into ongoing programming. Although not required, we strongly encourage collaboration between museums, local chemists, and chemistry students to support the American Chemical Society's National Chemistry Week and similar events this year and into the future. This year, National Chemistry Week is held **October 21-27, 2018**. For digital and material resources to celebrate NCW or to get involved, visit <http://www.acs.org/ncw>.

Report on Use of Kit

Physical toolkit recipients are required to complete a short online report describing their experiences with the toolkit. Partner feedback is a valuable tool when improving our educational materials and professional development resources based on community needs. A link to the report will be shared this fall. Reports will include optional evaluation questions to capture the impacts of the project activities on the public. Required reports must be submitted online by **December 15, 2018**.

In addition to the required report, we encourage you to participate in our project evaluation by collecting and sharing facilitator email addresses so that we can send them a survey about their experiences. A form to collect email addresses is included in the kit.

Additional Opportunities (not required but encouraged)

Attending Professional Development online workshops for informal science educators:

The NISE Network will offer a variety of free one-hour online workshops featuring a variety of topics. All online workshops will be recorded and archived. You can also learn more about upcoming and archived online workshops at <http://www.nisenet.org/events/online-workshop>.

Museum-Scientist Collaborations:

We strongly encourage collaboration between museums, local chemists, and chemistry students to support the American Chemical Society's National Chemistry Week and similar events this year and into the future. More information about museum and university partnerships can be found at <http://www.nisenet.org/catalog/guide-building-partnerships-between-science-museums-and-university-based-research-centers>.

Collaborating locally to reach underserved audiences:

Partnerships with K-12 schools, afterschool programs, local chapters of national youth-serving organizations, libraries, and local community groups can help your event reach underserved audiences. Tips for collaboration can be found at <http://www.nisenet.org/collaboration-guide>.

NATIONAL CHEMISTRY WEEK



October 21-27, 2018

About National Chemistry Week

National Chemistry Week (NCW) is an annual event that has been coordinated by the American Chemical Society (ACS) for over 30 years. NCW occurs the third week of October and coincides with Mole Day on October 23—a reference to *Avogadro's number*. Tens of thousands of volunteers around the country participate every year, including in all 50 states, Puerto Rico, and the District of Columbia. The dates for NCW in 2018 are October 21-27. Although not required, we strongly encourage collaboration between museums, local chemists, and chemistry students to support the American Chemical Society's National Chemistry Week and similar events this year and into the future.

You can learn more about NCW in this NISE Network blog post by ACS's Office of Science Outreach Manager, Lily Raines, <http://www.nisenet.org/blog/post/partner-highlight-outcomes-american-chemical-societys-2017-national-chemistry-week>.

For digital and material resources to celebrate NCW or to get involved, visit <http://www.acs.org/ncw>.

Additional resources:

- NISE Network National Chemistry Week links and resources
<http://www.nisenet.org/national-chemistry-week>
- ACS Celebrating Chemistry materials
<https://www.acs.org/content/acs/en/education/outreach/celebrating-chemistry-editions.html>

Informal Science Institutions and ACS Sections and Chapters

There are many inspirational examples of longstanding partnerships between ACS local sections or student chapters and informal science learning institutions. For instance, the Michigan State University (MSU) ACS Local Section has hosted Chemistry Day events in partnership with The Impression 5 Science Center in Lansing for a number of years. This event features hands-on activities facilitated by students from MSU and other local colleges and universities. Corporate sponsors have often arranged for free admission to the museum that day, so that all are welcome to participate. Another example of long-term collaboration is between The Santa Ana Zoo in California and the Orange County Local Section. These partners have been working together for over 20 years and the 2017 event had over 150 volunteer facilitators.

Scientists and educators from ACS local sections or student chapters can work with NCW coordinators to connect local institutions such as universities, colleges, industry, chemistry clubs and other chemistry

enthusiasts, and can network with other groups and individuals organizing NCW events. A database of local NCW coordinators is available at <http://ncwlookup.acs.org>. As described elsewhere in this guide, it's important to host a training for local volunteers ahead of time to describe what the event will be like, go over institutional safety protocols and requirements, run through the *Let's Do Chemistry* activities, and highlight effective facilitation practices like those described in the *Let's Do Chemistry* kit.

NCW Yearly Theme

ACS organizes a yearly theme that local sections and others can connect to their NCW activities and programs. Examples of yearly themes include *Nanotechnology*, *Chemistry and Art*, *The Sweet Side of Chemistry: Candy*, and *Chemistry Rocks*. The National Chemistry Week 2018 theme is **Chemistry is Out of this World**, focusing on chemistry and space.

In hosting a NCW event, not all activities have to support or connect to the theme. You'll notice that only a few of the *Let's Do Chemistry* kit activities include explicit connections to space phenomena and exploration. However, the theme can be a useful tool useful for planning and organizing and can be a nice way to connect with other events around the country.

Let's Do Chemistry kit activities connected to the 2018 NCW theme include "Rocket Reactions", "Molecules in Motion", and "Sublimation Bubbles." If you are looking for additional activities related to the 2018 theme, this is a great opportunity to use astronomy activities included in the NISE Network's *Explore Science: Earth & Space* toolkits! Learn more here, <http://www.nisenet.org/earthspacekit>.

Potential NCW Event Formats

NCW events vary in size, format, and scope. The simplest and most common way to celebrate National Chemistry Week is by organizing events featuring hands-on activities like the ones in the *Let's Do Chemistry* kit. This format allows volunteers from local and student sections all around the country to facilitate activities that directly connect the public with chemistry. A great example of this is the Detroit Local Section, which holds 4-hour events at the Cranbrook Institute of Science, at the Detroit Institute of Arts, and the Charles H. Wright Museum of African American History in Detroit over both weekends of NCW.

While hands-on activities are fantastic for directly connecting chemists with the public, the discipline of chemistry lends itself especially well to public demonstrations. The ACS Houston Local Section has hosted many large-scale NCW events featuring large scale, interactive demonstrations performed by Chemistry Wizard Dr. Bob Botto, a retired chemist from ExxonMobil. Dr. Botto and his colleagues follow up these events with free assemblies and hands-on events in schools and community settings throughout the year, including chemistry outreach events at local rodeos!

Many NCW events focus on encouraging young learners to embark on careers in STEM. The Carnegie Science Center has hosted ChemFest events with the Pittsburgh Local Section for nearly two decades, with an increasing focus on STEM career development. In addition to a wide range of hands-on activities

facilitated by local volunteers from universities, schools, and industry partners, the Carnegie's events have featured elements such as a Career Café for high school students and special presentations by guest scientists. The 2017 event featured guest presentations by Paige Kassalen, an under-30 engineer who worked on the Solar Impulse 2 project that built the first fixed-wing aircraft to circumnavigate the earth using only solar power. Funding is provided to schools and visitors of need through sponsorships and mini-grants.

Tips for hosting a National Chemistry Week Event

Plan ahead. Communication and planning is a key element of a successful event. You can find collaborators, secure local sponsorships or event funding, and coordinate regional activities by reaching out early to share your plans and goals. Invite partners to contribute their own program ideas or demos, and share your own!

Work together. Partner with local or regional informal science institutions, universities, colleges, industry, chemistry clubs, or other enthusiasts to host your event. Partner organizations will be useful in providing program resources (like glassware or special reagents), safety and disposal of materials, space, and most importantly staff and volunteer facilitators.

You can go big or small. There's no required size or format for a NCW event. Your event might start off small and could grow into something much larger over time. Many locations choose to keep it simple. For example, try taking a few activities out for a couple hours a day throughout the week. Or go big, and focus your efforts on a larger weekend festival or multiple events over the course of the week.

Get creative. Incorporate chemistry into other ongoing activities or events. Celebrations include programming at science cafes, science festivals, STEM events, regional fairs, and many other settings. NCW activities can pair up well with seasonal celebrations, such as Halloween. Or you can include chemistry activities alongside other STEM related programming and events, especially as it relates to the yearly theme.

Other Opportunities for Using the *Let's Do Chemistry* Kit at ACS-affiliated Events

Chemists Celebrate Earth Week: ACS also coordinates a national Chemists Celebrate Earth Week (CCEW) celebration annually, which is similar in format to NCW and focuses specifically on environmental topics. Recent yearly themes have included *Chemistry Helps Feed the World* and *Dive into Marine Chemistry*. The theme for 2019 will be *Take Note: The Chemistry of Paper*. For digital and material resources to celebrate NCW or to get involved, visit www.acs.org/ncw.

To learn more about getting involved with ACS to promote chemistry and chemistry education in your community visit, www.acs.org/outreach.

PLANNING TIMELINE

All *Let's Do Chemistry* physical kit recipients are required to host an event in October – December, 2018. Although not required, we strongly encourage collaboration between museums, local chemists, and chemistry students to support the American Chemical Society's National Chemistry Week and similar events this year and into the future. This year, National Chemistry Week is held **October 21-27, 2018**. We also encourage you to use your kit materials throughout the year to complement ongoing programming and participate in other ACS-affiliated celebrations (such as Chemists Celebrate Earth Week.) Each of these events will require some advance preparation. We've created a checklist to help with your planning, which includes many of the important elements you'll want to consider.

One to Three Months Before Your Event

- Make contact with the individuals and institutions that might be interested in organizing a chemistry event in your community. Please see the sections in this guide on collaborating and finding local experts.

- Schedule a kickoff meeting to organize your event. Include both museum staff and collaborating experts. Topics for the agenda include:
 - What are your goals for holding a *Let's Do Chemistry* event?
 - Who is your target audience?
 - What 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 event to your institutional calendars. Be sure to keep chemistry and annual STEM events in mind when choosing an event date.

- Plan your event. Your planning process might include creating:
 - A brief description of the event (type of activities, dates, times, location, collaborators)
 - A budget (and local fundraising plan, if necessary)
 - An outline of the event goals (and a plan for evaluating how well the event meets the goals)
 - A safety plan
 - A list of tasks and notes of who is responsible for each task
 - A schedule with the major milestones for preparation
 - A marketing strategy

- Become familiar with the materials in the *Let's Do Chemistry* toolkit including the activity guides, training materials, and in particular the *Let's Do Chemistry Safety Guide*.

- Begin promoting your event. Coordinate efforts between your own institution and your collaborators.
- Talk with collaborators about potential sources of staff and volunteers for the event.
- Choose a date and location for your training session(s) for staff, volunteers, and collaborators, and invite all appropriate event participants. You may want to hold a training session roughly a week in advance and offer another session immediately before your event for volunteers who may attend that day.
- Let volunteers and collaborators know in advance about available training materials, such as online activity training videos and online workshop opportunities. A summary email including a list of all resources can be a valuable reference for participants leading up to and immediately before the event.

At Least One Month Before Your Event

- Review your plans with your facility manager and/or health and safety officer. Share the *Let's Do Chemistry Safety Guide* with them and other staff. 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 if you are hoping to include any of these in your events
 - Parking for visitors and your volunteers and collaborators
 - Cleaning and sanitation service schedules
 - Security needs
- Ensure you have adequate staff and volunteers for your event.
- Draft an activity floor plan. Keep in mind that some activities need water, some can be messy, the rocket reactions activity needs vertical space, some work best in a dimmer space, and some are better with a place for visitors to sit down. Indicate the location of trash or solid waste receptacles, as well as locations for liquid waste disposal.

A Few Weeks Before Your Event

- Continue to promote your event.
- Consider creating signs or handouts listing the activities you're offering, as well as their times and locations.
- Create additional tabletop signs for activities that you may offer in addition to the activities contained in the toolkit.
- Do a test run of the activities.

- Prepare for staff and volunteer training session(s).
- Make final preparations for your event (safety, staffing, supplies, floor plan, schedule, and evaluation). Some activities may require advance preparation so be sure to allow enough time to prepare materials prior to your event.

The Week of Your Event

- Hold facilitator (staff, volunteers, guest educators) overview and training session(s).
- Continue to promote your event.
- Hold your *Let's Do Chemistry* event!

After Your Event

- Debrief on your 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 online *Let's Do Chemistry* event report form. **Reports are due by December 15, 2018.**
- Document your event for your future use. Save copies of programs, posters, and any newspaper or media coverage of your event.
- 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 *Let's Do Chemistry* kit activities into other events.
- Contact your NISE Network regional hub coordinator to find out about any additional professional development opportunities.
- Leverage the partnerships you have established through *Let's Do Chemistry* for other projects.

Using Your Kit All Year Long

We encourage you to use your toolkit all year-round. Some examples include special programming during fall, winter, or spring break camps, summer camp, afterschool programs, school field trips, ACS-affiliated celebrations, and other STEM events or festivals.

Calendar of STEM-related events

<http://www.nisenet.org/seasons>

Chemists Celebrate Earth Week (CCEW)

<http://www.acs.org/ccew>

National Chemistry Week (NCW)

<http://www.acs.org/ncw>

If you are developing or using additional activities (beyond those included in the *Let's Do Chemistry* kit), ACS provides a variety of additional resources related to safe chemistry practices, which may be useful. The *Let's Do Chemistry: A Framework and Strategies to Encourage Positive Attitudes Toward Learning Chemistry in Museums and Informal Settings* guide included in the kit may be a useful tool as you think about adapting these additional resources to match the learning goals of the *Let's Do Chemistry* project.

The *Let's Do Chemistry* physical kits include printed and bound copies the following resources:

Inquiry in Action, inquiryinaction.org

Inquiry in Action is a publication (also available as a PDF for free download) featuring a collection of inquiry-based physical and chemistry science lessons that support national content standards.

Best of WonderScience, <http://www.acs.org/education>

The Best of Wonderscience is a two-volume compilation of over 600 hands-on science activities aimed at students grades 3-6. The activities have all been reviewed for safety and use inexpensive, easy-to-source materials. 10 of the most popular activities are available for free download.

ACS also distributes additional resources and information through their website and various publications. For example,

ChemMatters, <https://www.acs.org/chemmatters>

ACS's monthly print publication. ChemMatters Online features free, downloadable resources and tools.

Outreach, <http://www.acs.org/outreach>

Resources to become more involved with chemistry related outreach and public engagement.

Resources for Chemistry Educators & Faculty

<https://www.acs.org/content/acs/en/education/educators.html>

COLLABORATIONS AND FINDING LOCAL EXPERTS

We strongly encourage collaboration between museums, local chemists, and chemistry students to support the American Chemical Society's National Chemistry Week and similar events this year and into the future. Volunteer experts are a key ingredient to many successful public engagement efforts. It is up to your organization to choose your local collaborators. Your NISE Net regional hub leader can assist you in finding local partners in your geographic area. The *Let's Do Chemistry* kit includes an overview training and other training materials to help prepare your event volunteers and staff for using the activities.

For Museums: Finding Local Experts

We strongly encourage museums to collaborate with local experts (including local chemistry teachers, college and university chemistry faculty and staff and students, local American Chemical Society (ACS) sections and student chapters). Volunteer experts are a key ingredient to many successful public engagement efforts.

American Chemical Society (ACS) Local Sections

ACS has 185 local sections of ACS members located throughout the United States. To find contact information for your state please visit: https://lslookup.acs.org/lslookup/local_search.

Most local sections have designated National Chemistry Week Coordinators. If there is a National Chemistry Week Coordinator in your area, you can contact them directly by visiting:

<https://www.ncwlookup.acs.org>.

American Chemical Society (ACS) Student Chapters

ACS has student chapters located on many college campuses across the country. To find the closest chapter to you please visit:

<https://www.acs.org/content/acs/en/education/students/college/studentaffiliates/find-a-chapter.html>.

Once you find the name of a student chapter, please contact undergrad@acs.org to reach out to their faculty advisor.

Colleges and Universities Departments

Your local colleges or universities will usually have a chemistry department, and some of these have existing outreach programs or clubs.

High School Chemistry Teachers

Once you connect with a high school teacher they may be able to suggest high school students who could volunteer at your event. ACS has more than 500 high school chemistry clubs across the US that may be useful in connecting with high school chemistry teachers and their students. The ChemClub directory can be found at:

<https://www.acs.org/content/acs/en/education/students/highschool/chemistryclubs/directory.html>.

For Chemists: Finding Local Museums

The NISE Network regional hub leader can help find a science or children's museum in your area. Please contact one of the regional hub leaders listed on page 17.

Lists of existing NISE Network partners are available here: <http://www.nisenet.org/core-partner-organizations>

Finding Additional Volunteers

In addition to finding subject matter experts, you will probably need to recruit other volunteers to help with your event. Potential sources of volunteers may include:

- 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 that are often associated with local colleges, such as:
 - American Indian Science and Engineering Society, <http://www.aises.org/>
 - National Action Council for Minorities in Engineering: <http://www.nacme.org>
 - National Society of Black Engineers (NSBE): <http://www.nsbe.org/home.aspx>
 - National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE): <http://www.nobcche.org/>
 - National Organization of Gay and Lesbian Scientists and Technical Professionals: <http://www.noglstp.org>
 - Society for Advancement of Chicanos and Native Americans in Science (SACNAS): <http://sacnas.org>
 - Society of Asian Scientists and Engineers: <http://www.saseconnect.org>
 - MAES - Latinos in Science and Engineering: <http://mymaes.org>
 - Society of Hispanic Professional Engineers: <http://shpe.org>
 - Society of Women Engineers (SWE): <http://societyofwomenengineers.swe.org>
- Drama and theater students
- Local industry staff and retirees

Regional Hub Leaders

The NISE Network community within the United States is organized around four "Regional Hubs" based on geographic proximity. Regional hubs facilitate partner interaction in the Network, help museum educators connect with scientists and each other, and provide support to institutions in their region. To find your region and contact your Regional Hub Leader, please see below.

Regional hub leaders will be able to help connect you with experts in your area and answer other questions about the project:

NORTHEAST

CT, DC, DE, MA, MD, ME, NH, NY, NJ, OH, PA, RI, VT, and WV

Ali Jackson, ajackson@sciencenter.org

Sciencenter, Ithaca, NY

607-272-0600x144

SOUTHEAST

AL, AR, FL, GA, KY, LA, MS, NC, OK, PR, SC, TN, TX, and VA

Brad Herring, brad.herring@lifeandscience.org

Museum of Life and Science, Durham, NC

919-220-5429x360

MIDWEST

IA, IL, IN, KS, MI, MN, MO, ND, NE, SD, and WI

Christina Leavell, cleavell@smm.org

Science Museum of Minnesota, St. Paul, MN

651-221-9434

WEST

AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, and WY

Frank Kusiak, frank_kusiak@berkeley.edu

Lawrence Hall of Science, Berkeley, CA

510-643-7827

TRAINING STAFF AND VOLUNTEERS

Training Resources

The *Let's Do Chemistry* kit includes many training resources that will help your staff and volunteers feel comfortable engaging public audiences and promoting positive attitudes toward learning about chemistry. All of the resources listed below are also available online at

<http://www.nisenet.org/chemistry-kit>.

- Training presentation for staff and volunteers including a project overview, safety information, and details about the educational products
- Interactive training programs:
 - “Atoms to Atoms”: Card game, based on the popular game Apples to Apples™, that provides examples of some of the ways chemistry relates to our lives
 - “Gum and Chocolate”: A hands-on (mouths-on!) experiment combining gum and chocolate that will give trainees a chance to take on the role of the visitor and experience doing a new activity
 - “What’s in the Box?”: Trainees can practice and remember the importance of asking good questions, listening to participant responses, and building on conversation with this improv-based game
- Facilitator guides for each activity
- Training videos for each activity
- Facilitation Training video: *Chem-Attitudes with Dr. Braxton Hazleby*
- *Tips for Facilitating Hands-on Chemistry Activities* (reproduced below)

Let's Do Chemistry

Tips for Facilitating Hands-on Chemistry Activities



INVITE PARTICIPATION

Greet participants

Say “hello,” make eye contact, and smile. Looking like you’re available and friendly will invite learners to interact with you. To start things off, you can ask a question that sparks participants’ interest.

Model what to do

To encourage participation or demonstrate safe procedures, you can quickly show learners what to do and then suggest that they try the activity themselves. If possible, meet them at eye level when explaining or modeling.

Engage the whole group

Participants will learn best if their entire social group takes part. To engage those who are hanging back, you can ask them a question or suggest something they can do.

Have fun!

Convey a positive attitude about learning chemistry together.

SUPPORT EXPLORATION

Let participants do the activity

As much as possible, let participants do the hands-on parts of the activity and let them discover what happens. You can ask questions, offer hints, and help out as needed.

Be flexible and attentive

Pay attention to participants’ interest, age, and abilities, and modify your facilitation style to create a safe, fulfilling experience for them. Keep in mind that children do not have the same prior experience, motor skills, or vocabulary as adults.

Ask guiding questions

Ask questions to discover what participants know or are interested in. You can also ask questions to help them notice something or try something out. Avoid asking questions that have right or wrong answers.

Be a good listener

Be interested in what participants tell you, and let their curiosity and responses move the interaction forward.

Use simple, clear language

Focus on one main idea at a time—don't feel that you need to tell participants everything at once! Keep the information basic for starters, and be willing to expand on an idea for interested learners.

Offer positive feedback

Observe what participants are doing, and provide positive reinforcement.

Support learners through challenges

Help participants figure out what to try next, rather than telling them what to do. When learners have trouble articulating their thoughts, help them think it through themselves.

DEEPEN UNDERSTANDING**Ask discussion questions**

As learners progress through the activity, you can ask questions that encourage them to draw from their own experience, make observations, and test their own answers.

Make connections

Help participants observe and think about the activity. Encourage them to make connections to personal experiences in everyday life and societal issues.

Share what you know

Contribute ideas and information from your own experience, maintaining a focus on helping participants develop positive attitudes toward learning chemistry.

Acknowledge what you don't know

If you aren't sure about something, it's ok to say, "I don't know. That's a great question!" Work with them to find the answer, or suggest looking online for more information.

Wrap up

Follow participants' cues and recognize when they're ready to move on. Thank them for participating and suggest other activities they might enjoy.

Planning Guest Presentations

Expert speakers can be a wonderful addition to your 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 "Tips for guest speakers," with your presenter. You might also share some of the other 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

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 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 this topic—it's not the end of their learning. Help the audience connect to other opportunities for more exploration.

Online Workshops

In addition to the resources listed above, the NISE Network will also offer a variety of free online workshops that your staff and volunteers are welcome and encouraged to participate in. There will be multiple one-hour workshops featuring training on a variety of topics connected to the *Let's Do Chemistry* kit and events. All online workshops will be recorded and archived.

Upcoming online workshops:

<http://www.nisenet.org/events/online-workshop>

Recordings of past online workshops:

<http://www.nisenet.org/events/online-workshop>

Additional Professional Development Tools

The NISE Network has created a wide variety of professional development tools, guides, workshops, and training materials as resources designed for educators and scientists to improve their capacity to engage the public in current science and technology. You can learn more here, http://www.nisenet.org/About_Professional_Development.



ADDITIONAL RESOURCES

In addition to the materials provided in the *Let's Do Chemistry* kit, we also want to feature a few other sources that contain a wealth of information about chemistry communication and public engagement.

Effective Chemistry Communication in Informal Environments

The National Academy of Science issued a report in 2016. You can download a PDF of the report (Part A - 108 pages) and a more practical guide (Part B – 29 pages) at the following location for free, <https://www.nap.edu/catalog/21790/effective-chemistry-communication-in-informal-environments>.

Public Attitudes to Chemistry

The Royal Society of Chemistry issued a research report in 2015. You can download PDF of the research report (78 pages), a toolkit for communicating about the report (12 pages), and a technical report (80 pages) at the following location, <http://www.rsc.org/campaigning-outreach/campaigning/public-attitudes-chemistry/>.

EVALUATING YOUR EVENT

The activities and materials included in your *Let's Do Chemistry* kit have been evaluated with public audiences, and reviewed by scientists and informal science educators. The NISE Network also evaluates the national impact of *Let's Do Chemistry*. The findings from these evaluation studies are used to improve future toolkit materials, and to inform the Network of its impact on the public.

Additionally, you may want to evaluate your local *Let's Do Chemistry* event against your own event goals. Evaluating your local 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, following is a selection of resources to help you get started.

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 explains each step of the TBI process and features ways TBI is used in the NISE Network to improve educational experiences and professional practice. Resources include templates, forms, training materials, and training videos:

<http://www.nisenet.org/catalog/team-based-inquiry-guide>

NISE Network program evaluation tools

Including a program evaluation template:

<http://www.nisenet.org/catalog/nise-network-program-evaluation-tools-package>

NISE Network evaluation efforts

Information about NISE Net evaluation: http://www.nisenet.org/About_Evaluation_Research

Additional Resources

Informalscience.org

Informal education resources:

<http://www.informalscience.org>

The National Science Foundation

Guidebook on project evaluation for researchers:

http://www.nsf.gov/pubs/2002/nsf02057/nsf02057_1.pdf

The University of Wisconsin Extension

Guides to planning and implementing evaluation:

<https://fyi.uwex.edu/programdevelopment/evaluating-programs/>

<https://learningstore.uwex.edu/Planning-a-Program-Evaluation-Worksheet-P1034.aspx>

LET'S DO CHEMISTRY EVENT REPORT

Partner feedback is a valuable tool when improving our educational materials and professional development resources based on community needs. Physical toolkit recipients are **required** to complete a short online report describing their experiences with the toolkit. A link to the report will be shared this fall. As a part of this report, our evaluators may ask additional questions about the *Let's Do Chemistry* products to learn about your experience using them, and to contribute to the project research. Reports may also include optional evaluation questions to capture the impacts of the project activities on the public. Required reports must be submitted online by **December 15, 2018**.

In addition to the required report, we encourage you to participate in our project evaluation. We are looking to gather data from your activity facilitators about their experiences using the activities with visitors. To facilitate this data collection, we request that you to ask your facilitators, 18 and over, if they would be willing to share their email addresses with us so that we can send them an online survey. There is an email sign-up sheet included in your kit. We will ask you to share these email addresses with us through your toolkit report.

If you have any questions about the evaluation, please contact Liz Kollmann (ekollmann@mos.org). We greatly appreciate your help and feedback.

Even if you weren't awarded a physical toolkit, you can still download and use the digital materials to engage public audiences in chemistry. If you download the materials, you're not required to fill out a report, but we'd still love to hear from you.

STAYING IN TOUCH

NISE Network Monthly E-Newsletter

The NISE Network sends a monthly electronic newsletter. Subscribe here:

<http://www.nisenet.org/newsletter>

If you have subscribed to the newsletter, but you are not receiving it via email, please see our FAQ page for assistance:

<http://www.nisenet.org/faqs>

NISE Network Social Networking

In addition to the monthly NISE Network electronic monthly newsletter, the NISE Network has many ways to get updates and connect with other professionals in the NISE Network through social networking sites that you already use:

<http://www.nisenet.org/social>

ACS Social Networking

Connect with ACS on social media, join ACS-run networks, follow ACS blogs, and subscribe to ACS newsletters and RSS feeds:

<https://www.acs.org/content/acs/en/membership-and-networks/collaborate.html>

If you are posting about your events and experiences, we encourage you to use these hashtags on your social network platforms:

#nisenet

#explorescience

#nationalchemistryweek

NISE Network Regional Hub Leaders

The NISE Network community within the United States is organized around four "Regional Hubs" based on geographic proximity. Regional hubs facilitate partner interaction in the Network, help museum educators connect with scientists and each other, and provide support to institutions in their region. To find your region and contact your Regional Hub Leader, please see the section on regional hub leaders earlier in this guide, or visit:

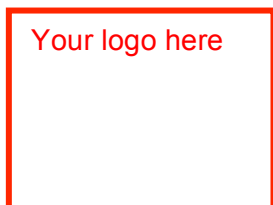
<http://www.nisenet.org/contact>

PROMOTIONAL AND MARKETING MATERIALS

We've put together a collection of resources to help you promote and market your Let's Do Chemistry event. 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, and other marketing materials.

All of the artwork and images shown on the following pages are available in electronic format on the USB thumb drive included in your toolkit, or online. We've provided Spanish and English options to help promote bilingual events. You can find materials online at: <http://www.nisenet.org/chemistry-kit>.

Sample Press Release



Date:

Contact:

Phone:

Email:

Celebrate *Explore Science: Let's Do Chemistry* at [name of your organization]!

[Insert your local *Let's Do Chemistry* event location, dates, and specific activity information here].

The *Explore Science: Let's Do Chemistry* event at [name of your organization] is part of a nationwide festival of educational programs about ways to experiment, explore, and tackle challenges with chemistry.

Chemistry is all around us—it's in the air we breathe, the food we eat, the clothes we wear, the medicines we take, and much more. But many people don't see this field of science as personally relevant or interesting.

Through exciting experiments and engaging conversations with scientists, the *Explore Science: Let's Do Chemistry* event will get participants thinking about chemistry connections in their everyday lives, and unlock their confidence to discover, create, and problem-solve with chemistry. Participants can launch a mini rocket with a chemical reaction, create foggy bubbles with dry ice, solve a colorful mystery, make their own dye from bug parts, and much more. With the right attitude, no challenge is too big for chemistry!

[Insert information about other special activities that your location may host, information about local partnerships and collaborations, ACS National Chemistry Week connections, and any other event-specific information.]

Led by the Museum of Science, Boston, Arizona State University, and the American Chemical Society, the *Explore Science: Let's Do Chemistry* events are part of a nationwide initiative to stimulate interest, a sense of relevance, and feelings of self-efficacy in chemistry among public audiences. The *Explore Science: Let's Do Chemistry* kits are developed and distributed by the National Informal STEM Education

Network (NISE Net). Together NISE Network partners are celebrating chemistry at over 250 museums and institutions across the country.



The National Informal STEM Education Network (NISE Network) is a national community of informal educators and scientists dedicated to fostering public awareness, engagement, and understanding of current science, technology, engineering, and math (STEM).



This project is based on work supported by the NSF under work supported by the National Science Foundation under Grant Number DRL 1612482. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Science Foundation.

For more information about NISE Net or to download a digital Explore Science: Let's Do Chemistry toolkit please visit: www.nisenet.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 us by sending them to us. However, we do have the following caveat: in order to be able to use and share photos of local events, we must have a release form signed by each person in the photo. 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, we do not require or expect photographs of your events.

The National Informal STEM Education Network (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 *Let's Do Chemistry* 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, please share those photos with us! You may send a USB with photos along with a scan of the photo releases to Boston Museum of Science at:

Kayla Berry
Museum of Science
1 Science Park
Boston, MA 02114

Alternatively, you can email them to Kayla Berry at kberry@mos.org.

Questions regarding acknowledgments or credits can be directed to kberry@mos.org as well.

**Museum of Science, *ChemAttitudes* project, and NISE Network
Photo Consent and Release**

I, _____, hereby authorize the Museum of Science (the "Museum") as agent acting for and on behalf of the ChemAttitudes: Using Design-Based Research to Develop and Disseminate Strategies to Support Chemistry Interest, Relevance, and Self-Efficacy (*ChemAttitudes*) project and National Informal STEM Education Network (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 *ChemAttitudes* project 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 educational materials, 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 or approval of the uses to which the Museum and the *ChemAttitudes* project may put the Photograph, Audio, and/or Video. I acknowledge the Museum and the *ChemAttitudes* project will rely on this permission and hereby release and discharge the Museum and the *ChemAttitudes* project 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 Museum and *ChemAttitudes* project

 I grant permission for Audio be collected and used by Museum and *ChemAttitudes* project

 I grant permission for Video to be collected and used by Museum and *ChemAttitudes* project

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: _____

NSF Acknowledgment of Support

The *Explore Science: Let's Do Chemistry* kits are part of the ChemAttitudes project, led by the Museum of Science, Boston, funded by the National Science Foundation under Grant Number DRL 1612482.

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 material is based upon work supported by the National Science Foundation under Grant Number DRL 1612482.

Additional statement for publications:

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Science Foundation.

The NSF logos are available in a variety of colors and file formats that can be downloaded from:

<http://www.nsf.gov/policies/logos.jsp>

Here are two basic NSF logos:



Logos

Explore Science: Let's Do Chemistry logos

You are very welcome to use the Explore Science: Let's Do Chemistry logos on your press release or event promotional materials. There are many variations and formats for the Explore Science: Let's Do Chemistry logos available for use in graphic materials. All Explore Science: Let's Do Chemistry logos are included on the USB thumb drive, and all the promotional materials are available on the website at:

<http://www.nisenet.org/chemistry-kit>

You can find the logos at:

<http://www.nisenet.org/catalog/explore-science-lets-do-chemistry-logos>

NISE Network logos

You can find logos and promotional materials for all the NISE Network projects here:

<http://nisenet.org/prmaterials>

Horizontal logo 1



Horizontal logo 2



Vertical logo



Explore Science mark



English logo versions



Logo mark versions



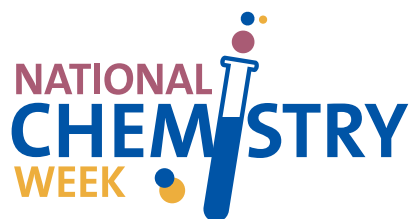
Bilingual logo versions



American Chemical Society logos

You are welcome to use American Chemical Society (ACS) logos on your press release or event promotional materials. There are many variations and formats available for use in graphic materials, as well as logos and artwork specific to National Chemistry Week and Chemists Celebrate Earth Week. All versions are included on the USB thumb drive. Additional information about the ACS style guide for print and digital materials and how to use the logos in promotional materials are available on the ACS website at:

<https://www.acs.org/content/acs/en/about/branding/logos.html>



Colors

Yellow, red and purple are the primary colors of the Explore Science: Let's Do Chemistry color palette.

Color specifications

CMYK	6/30/100/00	CMYK	0/75/78/0	CMYK	69/69/0/0
RGB	238/180/30	RGB	242/102/68	RGB	102/97/171
PMS	7409	PMS	7625	PMS	2665
#	eeb41e	#	f26644	#	6661ab

Fonts

The Explore Science: Let's Do Chemistry project uses two fonts: Panton and Calibri.

PANTON LIGHT

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
vwxyz 1234567890

PANTON REGULAR

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
vwxyz 1234567890

PANTON EXTRA BOLD

**ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
vwxyz 1234567890**

PANTON FONT FAMILY

The Explore Science logo was based on the Pantone typeface. Pantone is used throughout Explore Science materials. The versatile font family includes ten different weights. Free download is not available, but the font can be purchased online from various sources.

CALIBRI LIGHT

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
vwxyz 1234567890

CALIBRI REGULAR

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
vwxyz 1234567890

CALIBRI BOLD

**ABCDEFGHIJKLMN
OPQRSTUVWXYZ &
abcdefghijklmnopqrst
vwxyz 1234567890**

CALIBRI FONT FAMILY

Calibri is also used in Explore Science materials. Calibri Regular and Bold come with the Windows operating system and also with Microsoft Word for Mac. Calibri Light can be purchased online from various sources.

Social Media

We encourage you to use these hashtags on your social networks to promote your event:

#nisenet

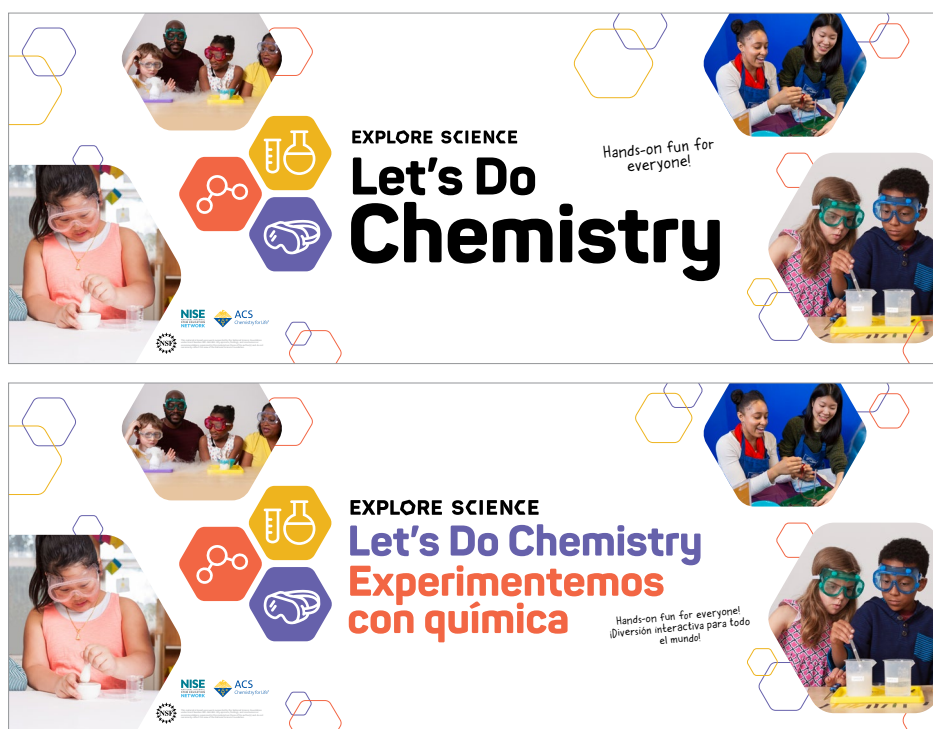
#explorescience

#nationalchemistryweek

Banners

Two large Explore Science: Let's Do Chemistry banners are included in your toolkit (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 similar large vinyl banner with grommets should cost about \$100.



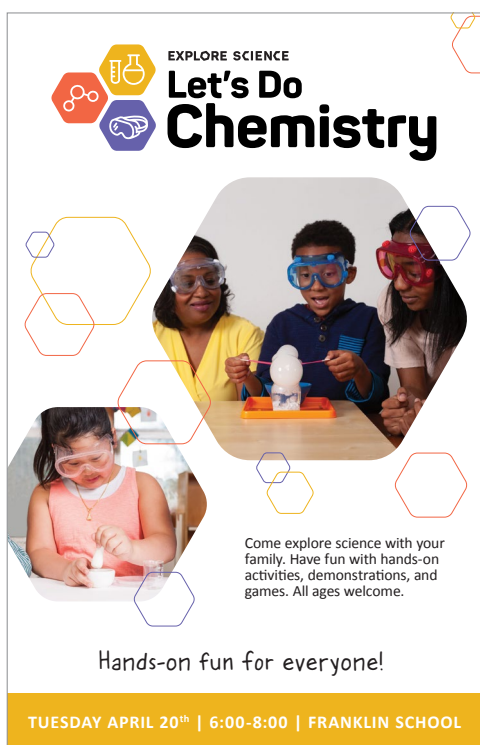
64 x 24 inches

Customizable Ads and Posters

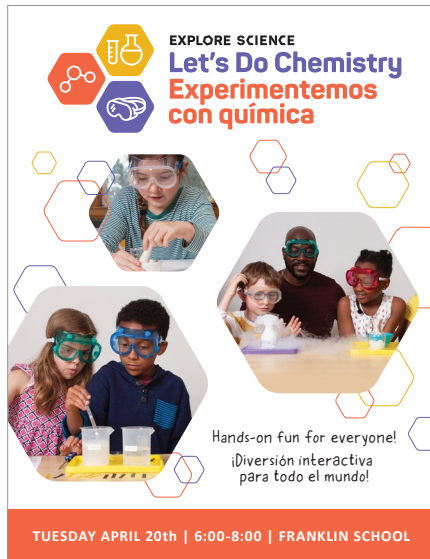
To help you promote your event, PDF, JPEG, and Adobe Illustrator files are provided.



Each ad layout is provided in both English and bilingual format



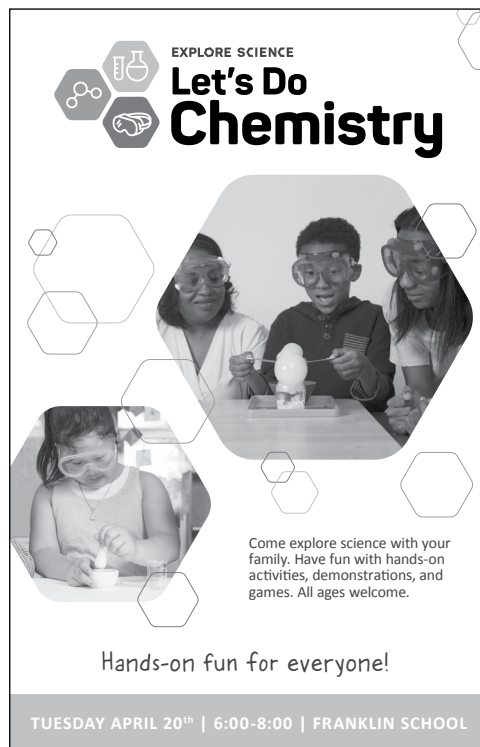
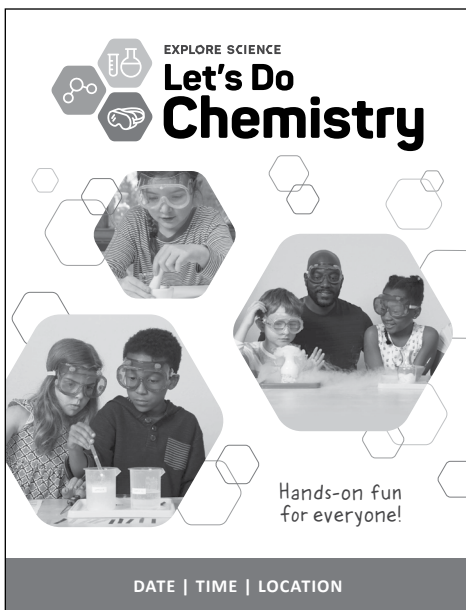
11 x 17 posters



Each poster layout is provided in both English and bilingual format

8.5 x 11 posters

Each ad and poster is also provided in black and white





EXPLORE SCIENCE

Let's Do Chemistry





EXPLORE SCIENCE

Let's Do Chemistry





EXPLORE SCIENCE

Let's Do Chemistry



Hands-on fun
for everyone!



EXPLORE SCIENCE

Let's Do Chemistry



Hands-on fun
for everyone!

Press Photos

We have provided a selection of press photos that you can use to market your Explore Science: Let's Do Chemistry events.



_T3B9954.jpg
Credit: Science Museum of Minnesota



20180303GH_186_edit.jpg
Credit: Gary Hodges



20180303GH_332.jpg
Credit: Gary Hodges



20180303GH_536.jpg
Credit: Gary Hodges



20180303GH_622.jpg
Credit: Gary Hodges



20180303GH_677.jpg
Credit: Gary Hodges



20180303GH_679.jpg
Credit: Gary Hodges



ExSci_Chem_20180219_1200.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1339.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1380.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1423.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1432.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1448.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1505.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1509.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1548.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1579.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1612.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1666.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1673.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1678.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1686.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1708.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1774.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1777.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1778.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1818.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1828.jpg
Credit: Emily Maletz



ExSci_Chem_20180219_1847.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1747.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1778_edit.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1877.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1893.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1902.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1907.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1911.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1924.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1961.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_1999.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2045.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2063_edit.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2096.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2136.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2233.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2235.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2245.jpg
Credit: Emily Maletz



ExSci_Chem_20180530_2272.jpg
Credit: Emily Maletz

creative commons



CC BY-NC-SA 3.0

We encourage you to use the provided publicity photos in marketing your event, and in creating related materials.

Please see image thumbnails for credit information.

These photos are free for use under a Creative Commons Attribution-NonCommercial-ShareAlike license: creativecommons.org/licenses/by-nc-sa/3.0/us/.