National Chemistry Week celebrates the chemistry of energy

By Linda Wang

Energy and enthusiasm were on full display across the U.S. during this year’s National Chemistry Week (NCW), which took place on Oct. 20–26. The weeklong celebration, coordinated by the American Chemical Society’s Committee on Community Activities with help from the ACS Office of Volunteer Support, highlights the important role that chemistry plays in everyday life.

“National Chemistry Week is perhaps the one ACS event that involves virtually every local section and tens of thousands of volunteers and members of the public,” says ACS Executive Director and Chief Executive Officer Madeleine Jacobs. “It is a great time to celebrate chemistry and its many contributions to ‘Improving people’s lives through the transforming power of chemistry,’” which is the vision statement of the society.

Volunteers from ACS’s 187 local sections partnered with businesses, schools, and individuals throughout the U.S. and Puerto Rico to lead chemistry demonstrations and hands-on activities at public venues such as museums, shopping malls, and libraries.

“The theme ‘Energy—Now & Forever!’ was this year’s theme. “Energy is certainly a hot topic, and we need to inspire the general public to better understand how solving global energy challenges will come about through science and energy,” ACS President Marinda Li Wu says.

The theme “really lent itself to creativity with kids,” notes George Heard, chair of the Committee on Community Activities. Local sections incorporated the theme into hands-on activities, such as making solar-powered pinwheels and exploring thermal energy with a frozen balloon placed in either a hot or a cold bath.

The NCW publication Celebrating Chemistry featured articles on the chemistry of energy, as well as activity ideas. The publication is available both online and in print in English, Spanish, Portuguese, and Mandarin. In keeping with the theme, this year’s NCW community event was battery recycling, and local section volunteers across the U.S. organized battery collection and recycling events.

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A girl plays with dry ice during the Syracuse Section’s Spooktacular event at East Syracuse-Minoa High School.

Credit: Sally Mitchell

A girl gets a hair-raising experience during the Northeast Tennessee Section’s event at Eastman Chemical.

Credit: Steve Falling

In the Middle Georgia Section, children at Ridge Road Primary School learn about wind energy by making pinwheels.

In the Maine Section, ACS student members from the University of Maine hosted the fourth annual ChemFest, an evening of chemistry demonstrations geared toward high school students.

The Northeastern Section, working with the ACS Division of Environmental Chemistry and the Cape Cod & Islands Council of the Boy Scouts of America, organized a science café featuring chemistry demonstrations and career talks by local scientists. NCW celebrations also took place at the Museum of Science in Boston and the Boston Children’s Museum.

In the Syracuse Section, celebrations included an event at Abbott Farms in Baldwinsville, N.Y.; activity stations at the Carol M. Baldwin Breast Cancer Research Fund’s A Run for Their Life 5K run/walk event to support breast cancer research; an event at the Destiny USA shopping mall, in Syracuse; a Science is Fun event at Cazenovia College; and a Halloween-themed Spooktacular event at East Syracuse-Minoa High School.

Elsewhere in the state, the Eastern New York Section’s outreach event at the New York State Museum drew more than 600 visitors who rotated through stations with activities such as making batteries from pennies and dimes and powering solar cells with fruit. Visitors also saw a Fire & Ice Chemistry Magic Show.

Upstate, the Northern New York Section engaged fifth- and sixth-graders at St. Mary’s School, in Canton, with a presentation on energy by Dana M. Barry of Clarkson University, who described different types of energy as well as industries, all of the nonprofits, and all of the community partners for providing assistance and venues and partnership,” he says.

ACS’s various offices and divisions also did their part to help with the celebration. During NCW, the Education Division launched a new website called Energy Foundations for High School Chemistry, which provides resources for high school chemistry teachers; the division’s Kids & Chemistry program, in partnership with the Office of Public Affairs’ Chemistry Ambassadors, provided activity kits for distribution; ChemMatters devoted its October/November issue to energy; and the Office of High School Chemistry conducted a webinar on NCW resources.

In addition, the Publications Division offered free access during the week to resources from the Journal of Chemical Education, and the Office of Public Affairs assisted the Western Michigan Section in getting Michigan House of Representatives Resolution 253 passed. The resolution declared Oct. 20–26, 2013, Chemistry Week in the state of Michigan.

The celebration could not have happened without the help of tens of thousands of volunteers across the country, says ACS Board Chair William F. Carroll Jr. “The big winners of National Chemistry Week are the volunteers,” he says. “It’s one opportunity they have to talk about the profession they’ve given their lives to and to do it in a way they hope will engage another generation.”

“I want to thank all the volunteers who make this event so wonderful,” Carroll continues. “I want the volunteers to know that the ACS Board of Directors and the chair of the board of directors absolutely appreciate every hour that they put into this celebration.”

The following highlights of NCW celebrations across the U.S. are based on local section reports:

In the Maine Section, ACS student members from the University of Maine hosted the fourth annual ChemFest, an evening of chemistry demonstrations geared toward high school students.

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More than 300 volunteers turned out to help the New York Section conduct hands-on activities and chemistry demonstrations at the New York Hall of Science, in Queens. The event drew more than 1,000 visitors, who learned about green forms of energy, including solar, hydrogen, and geothermal. Mr. Met, the official mascot of the New York Mets baseball team, made a special appearance and took photos with visitors.

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A young visitor to the New York State Museum learns about the properties of surfactants, thanks to activities put on by the Eastern New York Section.

Credit: Alison Gracias

A physics student demonstrates angular momentum in honor of NCW during the Baton Rouge Section’s Super Science Saturday event at Louisiana State University.

Credit: Anne K. Taylor

The Nashville Section treated visitors to cookies baked with solar energy during an event at Middle Tennessee State University.

Credit: Ruth Woodall

In New Jersey, more than 1,000 people attended the North Jersey Section’s ChemExpo event at the Liberty Science Center, in Jersey City. Also during NCW, six ACS student chapters from North Jersey colleges participated in the fourth annual Sister Marian José Smith Undergraduate Outreach Competition for the best interactive demonstration on energy.

In the Trenton Section, volunteers from the local section, Mercer County Community College, and Rider University provided a week of hands-on activities and chemistry demonstrations to approximately 750 children, who enjoyed activities such as creating a human circuit with an energy stick, observing heat given off when sodium acetate crystallizes, and making slime.

Volunteers in the mid-Atlantic region also generated energy and enthusiasm. The Erie Section hosted science demonstrations at Millcreek Mall, in Pennsylvania. Visitors to the mall learned about different forms of energy through activities such as mixing household products to produce heat or mixing citric acid and baking soda to produce a chilling effect.

In the Philadelphia Section, 134 sixth-grade girls from 37 schools participated in the Philadelphia Area Girls Enjoying Science program. After listening to a keynote address by a woman scientist, the girls divided into groups and performed experiments led by female scientists.

In the Northern West Virginia Section, ACS student members from West Virginia University treated the public to a chemistry magic show. Demonstrations included elephant toothpaste, balloons in liquid nitrogen, and exploding hydrogen balloons.

The Chemical Society of Washington participated in the Crystal City Kidtacular event, in Arlington, Va., which was held in conjunction with the Marine Corps Marathon. Society volunteers handed out pencils and NCW publications, as well as engaged roughly 100 children in hands-on activities.

Farther south, more than 500 elementary school students and their parents participated in Spooky Science Night, hosted by the Southwest Georgia Section at West Green Elementary School, in Douglas.

Elsewhere in Georgia, the Middle Georgia Section entertained more than 6,000 people with events such as NCW Family Fun Night at Georgia College & State University, in Milledgeville. ACS student members at colleges and universities across Georgia sponsored their own activities, including an NCW Kickoff Cookout at Georgia College, a math and science festival at Brewton-Parker College, and a chemistry demonstration show at Mercer University.

In the Auburn Section, faculty and students from Columbus State University, in Georgia, and from Auburn University and Huntingdon College, both in Alabama, put on chemistry demonstrations and hands-on activities at their respective universities. In addition, students and faculty from Columbus State University drew a periodic table on a bridge walkway, spray-painted an NCW banner, and hosted chemistry demonstrations at Albany High School, in Georgia.

The Baton Rouge Section hosted Super Science Saturday for roughly 1,000 children and their parents at Louisiana State University. Volunteers from the Society of Physics Students demonstrated angular momentum and the properties of cornstarch in water. Food science students from Louisiana State University demonstrated the science behind emulsions. And scientists from ExxonMobil made worms from the cross-linking polymer alginate.

In Florida, the Tampa Bay Section hosted a day of activities at the Glazer Children’s Museum, in Tampa. Volunteers from the University of Tampa demonstrated how to convert glue from a sticky liquid to an elastic, nonsticky conservation. The section also hosted its annual Chemtoberfest, a free family festival, at SUNY Potsdam.
In the Omaha Section, a student performs an experiment at Creighton University. Is it witchcraft or chemistry?

Credit: Jiro Fujita

James Pennington, an instructional assistant professor of chemistry at Texas A&M University, dazzles the crowd during the Texas A&M Section's Chemistry Road Show.

Credit: Igor Kraguljac

Kids attending the Orange County Section's NCW event at the Santa Ana Zoo learn how oxygen gas is produced chemically. Volunteers also distributed educational materials and balloons to more than 200 museum visitors.

Nearly 1,400 fourth-grade students attended the Northeast Tennessee Section's annual Celebration of Chemistry for 4th Graders event at Eastman Chemical's Toy F. Reid Employee Center, in Kingsport. Eastman employees engaged students in activities and demonstrations, and Radford University physical chemistry professor Francis Webster put on a Magic of Chemistry show.

In the East Tennessee Section, chemistry professor Al Hazari entertained roughly 300 kids with his annual chemistry magic show at the University of Tennessee, Knoxville. Hazari also put on a chemistry show during Mad Scientist Family Fun Day at the East Tennessee Discovery Center in Knoxville. In addition, ACS student members from the University of Tennessee, Knoxville; Maryville College; and Walters State Community College presented chemistry demonstrations at their schools.

The Nashville Section organized NCW activities at schools, museums, senior centers, and churches. Aegis Sciences, in Nashville, hosted a week of NCW events featuring activities and contests such as pipette races.

In the Kentucky Lake Section, ACS student members from local colleges and universities performed 18 demonstrations at a CHEMagic show at the University of Tennessee, Martin, which drew roughly 300 students. In addition, students from Murray State University collected more than 300 batteries for recycling.

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In Illinois, the Illinois Heartland Section hosted NCW events at the Peoria Riverfront Museum; the Illinois State Fair, in Springfield; and the Children's Discovery Museum, in Normal.

Farther north, the Michigan State University Section hosted Chemistry Day at the Impression 5 Science Center, in Lansing. Students from Michigan State University, Olivet College, and Perry High School, along with scientists from Emergent BioSolutions and Consumers Energy, presented hands-on activities and chemical demonstrations to more than 600 visitors, who received free admission to the science center thanks to a donation from Emergent.

The Western Michigan Section hosted its annual Chemistry at the Mall event at Lakes Mall, in Muskegon. Chemists from local companies performed chemistry demonstrations, and companies sponsored interactive displays.

In the southwestern part of the U.S., the Texas A&M Section hosted its 26th Annual Chemistry Open House & Science Exploration Gallery at Texas A&M University. More than 1,000 students attended the event, which included shows, lectures, and hands-on demonstrations.

The Greater Houston Section hosted chemistry demonstrations and activities for more than 400 people at the Children's Museum of Houston. In addition to hands-on activities related to energy, Chemistry Wizard Bob Botto, a retired chemist from ExxonMobil, performed several interactive demonstrations.

In the South Plains Section, ACS student members from Texas View the winning entries from the NCW Illustrated Poem Contest at solid using starch.
Tech University performed demonstrations in front of their chemistry building and university library. Activities included powering a light bulb using salt water and making electrolytic cells using citrus fruits.

Volunteers from the South Texas Section and members of the South Texas College Chemistry Club hosted hands-on activities at the Lark Community Center, in McAllen. Elsewhere in the state, the South Texas College physical science department celebrated Mole Day on Oct. 23 with cookies and a periodic table of cupcakes.

In the Permian Basin Section, the Chemistry Club of Midland College hosted an event at Midland Park Mall, in Texas. Activities included dry-ice experiments and making a pickle glow by applying an electric charge.

In the Wakarusa Valley Section, students from the University of Kansas Chemistry Club designed an Erlenmeyer flask costume and enjoyed root beer floats while learning about food chemistry.

Members of the Omaha Section and the Creighton University chemistry department teamed up to put on "A Melodious Musichemical Manifestation." In this hour-long show, costumed students performed chemistry demonstrations choreographed to music.

In the Idaho Section, Chemistry Club members from Idaho State University presented hands-on activities at Washington Elementary School, in Boise. Club members also put on two free chemistry shows attended by more than 400 people from the community.

The Portland Section hosted activities at the Oregon Museum of Science & Industry, in Portland. Visitors learned the difference between phosphorescence and fluorescence, explored the electrical conductivity of graphite, and made images using photosensitive paper.

Members of the Richland Section toured Western Sintering Co., in Richland, Wash., which produces engineered parts from powder metallurgy materials. The section also hosted a Girls in Science day at Eastern Oregon University, in La Grande.

The California and Santa Clara Valley Sections joined forces for a full day of hands-on activities during the Bay Area Science Festival's Discovery Days at AT&T Park, in San Francisco. The California Section also hosted Family Math & Science Night at Thornton Junior High School, in Fremont, which was attended by more than 1,000 people. In addition, the Santa Clara Valley Section hosted an outreach celebration at the Dr. Martin Luther King Jr. Library in San Jose.

Nearby, the San Joaquin Valley Section was having an equally good time. The local section hosted its annual NCW Wine & Cheese Social at Agriculture & Priority Pollutants Laboratories, in Clovis, Calif., and members and their guests toured its lab. Elsewhere in California, the Fresno State Chemistry Club held a green energy scavenger hunt and toured BSK Analytical Laboratories, in Fresno.

In the southern part of the state, the Orange County Sections brought its activities to the Santa Ana Zoo. More than 200 volunteers, including high school and college students, local section members, and retired chemists, assisted visitors with hands-on activities.

Farther south, the San Diego Sections celebrated NCW with its 26th annual ChemExpo at Balboa Park. The event drew more than 1,000 students, parents, and teachers. In addition to providing hands-on activities, local university chemistry clubs organized stage demonstrations.

Not to be outdone, the Hawaii Sections teamed up with the Hawaii Science Teachers Association's chemistry section to host a day of hands-on activities at Kahala Mall, in Honolulu. Volunteers from industry, government, and local high schools and colleges assisted children as they rotated through 14 activity tables.

Finally, the Puerto Rico Section held its annual Festival de Química in San Juan. More than 500 volunteers, including members from 13 ACS student chapters and ChemClubs around Puerto Rico, engaged more than 3,500 kids and adults in hands-on demonstrations related to energy.

Planning for next year’s NCW celebration is already under way. NCW 2014 will focus on "The Sweet Side of Chemistry—Candy" and will take place on Oct. 19–25.
View the winning entries from the NCW Illustrated Poem Contest at [http://cenm.ag/ncw13](http://cenm.ag/ncw13).

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