Science Celebrations

Year of Science 2009: Communicating, Collaborating, and Celebrating Science
From the Origin to the Future of Species: Celebrating Darwin's Legacy
Stars Align for the International Year of Astronomy 2009
Challenging and Changing Minds: Emotional Learning and Physics Competitions
We Threw a Party and Everybody Came: A Science Celebration Sampler
IN THIS ISSUE November/December 2008

In 2009, science centers and museums will celebrate the Year of Science, Charles Darwin’s 200th birthday, and the International Year of Astronomy. Every year, many institutions plan programs around global initiatives like Earth Science Week and international holidays like World Environment Day. New celebrations such as NanoDays and the Cambridge Science Festival, Massachusetts, are introducing thousands of people to science. In this issue, we examine how science celebrations are advancing public engagement with science, changing attitudes, bringing in new audiences, and strengthening links among science centers.

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Cover: Science celebrations can make science accessible to broad audiences. Photos, clockwise from top left: A student enjoys the Wave Swinger during the BC’s Brightest Minds physics competition at an amusement park in Vancouver, Canada (photo by Rachel Moll); the Museum of Science, Boston, launches NanoDays, a celebration of nanoscale science, engineering, and technology, with the world premiere of the Amazing Nano Brothers Juggling Show (photo by Eric Wineman, Museum of Science); at the NanoDays celebration, Museum of Science staff member Vylena Olney explains the structure of a carbon nanotube to a visitor, with the help of a balloon model (photo courtesy Museum of Science).

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Year of Science 2009:
Communicating, Collaborating, and Celebrating Science

By Sheri Potter and Judy Scotchmoor

A scientist is sitting on a bar. That’s right, on a bar, talking about science.

A state science teachers’ association is holding a “process of science” party, complete with custom-built versions of Twister and Bingo games that reinforce key process-of-science concepts.

Science communicators in New York are hosting a blog-a-thon to teach local researchers how to talk about science in the blogosphere.

Museums are holding public participation in research events, where visitors collect data on everything from bee distribution to precipitation.

What do all these events have in common? They all focus on celebrating science during the Year of Science 2009 (YoS09), a year-long, U.S.-based initiative hosted by the growing grassrooots Coalition on the Public Understanding of Science (COPUS, www.copusproject.org). Sponsored by the American Institute of Biological Sciences, the Geological Society of America, the National Science Teachers Association, and the University of California Museum of Paleontology, COPUS forms a communication and collaboration network of U.S. science centers and museums, universities, scientific societies, government agencies, advocacy groups, media organizations, schools, and businesses—basically, anyone who cares about science and is concerned about national scientific literacy. Over 300 organizations in 44 states and Washington, D.C., are now part of the COPUS network and are asking themselves, “What can we do in 2009 to engage the public with science?”

Why celebrate science?

A 2004 National Science Board poll suggests that two-thirds of U.S. citizens do not have a firm grasp of the scientific process. According to a 2001 Gallup poll, belief in pseudo-science is relatively widespread in the United States and may be on the rise. Public understanding of science is crucial if the United States is to maintain an economic position as a world leader in science.

COPUS recognizes that the public sector is a diverse entity that cannot be positively engaged through a single effort or activity. To re-engage the public in science will take a collaborative and multifaceted set of programs and strategies at local, regional, and national levels. In light of today’s persistent controversies over stem cell research, nanotechnology, climate change policy, and the teaching of evolution, there has never been a more important time to remind the public how science works, who scientists are, and why science matters. And there has never been a more opportune moment to leverage web-based technologies in support of doing so collectively.

Why 2009?

Numerous seminal events in science can be associated with 2009. Plans are already underway to observe Darwin’s 200th birthday, the 150th anniversary of the publication of On the Origin of Species, the 400th anniversary of Galileo’s use of an astronomical telescope, and the 400th anniversary of the publication of Johannes Kepler’s first two laws of planetary motion, to name a few.

With the stage set for recognizing each of these events, 2009 becomes an ideal time for celebrating all science and scientists—those who have made major contributions in the past, those who are working on key issues today, and those who will become the scientists of tomorrow.

How can we participate in the celebration?

Museums and science centers have long been at the heart of the public experience with science, translating scientific research into something people can touch and experience. They have successfully communicated science to visitors of all ages and will be essential partners in the success of the YoS09 endeavor.

Participation can be as simple as adding the YoS09 logo to your center’s website or promotional materials and continuing to do what you are already doing, but as part of a larger national initiative. COPUS is also encouraging local and regional collaborations to engage in new activities that might expand your audience. Each month of the year is associated with a theme on which to focus activities. (See the chart on page 4.)

Science cafés (www.sciencecafes.org/copus.html) are an outstanding mechanism for communicating science to the general public. The café brings science to the public in places where they already are, such as bars, coffeehouses, and restaurants. As participants enjoy a cup of coffee or a glass of wine, they also enjoy a conversation with a scientist about his or her research. By moving science dialogue out of traditional
venues, cafés demonstrate the cultural relevancy of science. National evaluations show that cafés contribute to participants’ interest in science and motivate them to share their enthusiasm with others. Scientists report that the experience enhances their ability to communicate their work to the public. Also, science cafés are easy, fun, and a great solution for limited time and resources. As an added bonus, the press often covers these events.

### Themes for Year of Science 2009

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Many museums and science centers are looking at how to better portray the process of science in their exhibits and programs. The overarching theme of YoS09 is “How do we know what we know?” In other words, who are the scientists and how do they do their work? Many people think that science amounts to learning facts from a textbook, following the simple steps of the scientific method, and working in an isolated lab. The true nature of science is far more complex, creative, and exciting. We have an opportunity to share how science really works as we kick off YoS09 with January’s theme, the “process and nature of science,” and the launch of a new collaborative web resource, Understanding Science (www.understandingscience.org). This site, a project of the University of California–Berkeley, portrays science as a dynamic and nonlinear process.

Collaborations that include science centers have been at the heart of a new phenomenon popping up in several cities across the United States—science festivals. Long popular in Europe, these festivals combine traditional and nontraditional activities in order to reach large and diverse audiences. For example, one might have the opportunity to attend a lecture, enjoy a musical composition, visit a laboratory, or listen to a storyteller—all with the focus on celebrating science. Several festivals, including the Cambridge Science Festival in Massachusetts (see the article on pages 12–14) and the San Diego Science Festival in California, are part of the COPUS initiative.

While COPUS is localized to the United States at this time, we are excited to hear about and share what others in the world are doing to celebrate and promote the public understanding of science. The international colleague registration form (www.copusproject.org/yearofscience2009/international.php) invites anyone in the world to register as a participant in the celebration.

Museums and science centers are critical to the public understanding of science. ASTC has already taken a lead in the COPUS network, serving as one of the original thematic hubs (peer communities that build bridges between their members and the national COPUS coalition). We encourage you to register your organization on our web site (www.copusproject.org/register) and to leverage the work you are already doing to make science more accessible, personally meaningful, and locally relevant.

Sheri Potter is manager of the Membership and Community Programs Department at the American Institute of Biological Sciences and serves as the COPUS Project network manager. Judy Scotchmoor is director of education and public programs at the University of California Museum of Paleontology and serves on the COPUS Steering Committee. For additional information on COPUS and the Year of Science 2009, contact Sheri Potter at spotter@copusproject.org or 941/923-6320.

### From the Origin of Species

Celebrating Darwin in 2009

By Potter

Between July 2008 and November 2009, the world will celebrate the life of Charles Robert Darwin (1809–82) and the continuing impact of his discoveries, which have fundamentally changed the way we perceive nature and our place in it. Three major anniversaries fall within this time period: the 150th anniversary of the reading of Darwin’s paper on natural selection (July 1, 2008); Darwin’s 200th birthday (February 12, 2009); and the 150th anniversary of the publication of On the Origin of Species (November 24, 2009).

Three anniversaries

July 1 marked 150 years since the reading of Darwin’s and Alfred Russel Wallace’s papers at the Linnean Society...
Origin to the Future of Species:  
Darwin’s Legacy

By Katie Edwards

of London. The original, hastily arranged meeting first announced the mechanism of evolution by natural selection to fellow scientists, and was the catalyst for Darwin to write *On the Origin of Species*—the book that rocked society when it was published in 1859.

To celebrate this anniversary, the Linnean Society hosted a contemporary reading of new papers on advances in the science of evolution. Simultaneously, we at the Natural History Museum, London, along with the British Council, organized the 2008 International Youth Summit on Darwin and Contemporary Science. Over three days, 190 young delegates from more than 20 countries learned about current evolution science, genetic technologies for understanding biodiversity, and the future of genetic modification. The accord from the summit, containing the delegates’ views, will be shared with government science and education departments from the participating countries.

As we look forward to the two upcoming Darwin anniversaries, the Natural History Museum, London, will continue the celebration by hosting *Darwin*, a large touring exhibition, from November 2008 until April 2009. Originally developed by the American Museum of Natural History in New York City with the Natural History Museum and Down House (Darwin’s former home in Kent), this exhibition offers a rare opportunity to see many specimens Darwin collected on the voyage of the *H.M.S. Beagle*. There is also a re-creation of his study at Down House with a display of personal items. The exhibition will be supported by a series of lunchtime and evening events and discussion sessions to explore current issues around Darwin’s work and evolutionary science.

**Darwin200**

In addition, a small team at the Natural History Museum, London, is leading an initiative called Darwin200. The initiative brings together all the U.K. organizations that are planning Darwin’s bicentennial celebrations to share ideas and to endorse and publicize events. The museum is well placed to coordinate this project, due to our mission to address big issues in science, as well as our role as guardian of much of Darwin’s physical legacy. We hold many specimens from the *Beagle* voyage, including the finches and mockingbirds from the Galapagos Islands that helped to crystallize Darwin’s ideas. We have the corals he used to help prove his theory on the formation of atolls, the barnacle collection he studied to demonstrate his ability as a senior systematic scientist, and many other specimens he used in his research. The museum has also recently acquired the Kohler Darwin Collection, the world’s largest collection of works by and about Charles Darwin. The collection includes a first edition of *On the Origin of Species*, which Darwin sent, along with a signed letter, to William Bernhard Tegetmeier, a pigeon fancier and poultry expert with whom Darwin corresponded about his research.

So far we have over 70 partners including the British Association, Wellcome Trust, and Cambridge University. But academic organizations and science centers are not the only ones planning events. Many heritage sites, theater companies, educational charities, arts and crafts groups, poets, and composers are developing arts- and performance-based projects.

The range of activities planned for next year is astounding. Participants will be able to visit the Darwin Memorial & Geo Garden in Shrewsbury, e-mail a birthday message to Darwin, go to a concert of Darwin-inspired music, take their children to a family show about Darwin’s adventures, or maybe even see a keel being laid for a new replica of the *Beagle*. Many of the projects will have legacies that persist beyond the anniversary period, including educational resources to enhance the teaching of evolution in schools.

The Darwin200 logo has been created to endorse events, and a web site, www.darwin200.org, promotes these events and (continued on page 6)
In 2009, the world will celebrate the 400th anniversary of the first time Galileo Galilei turned his telescope toward the night sky. This quincentennial celebration of the modern era of astronomy has inspired an extraordinary effort entitled the International Year of Astronomy 2009 (IYA2009, www.astronomy2009.org), to be launched in January by the International Astronomical Union under the theme “The Universe, Yours to Discover.”

IYA2009, a highly organized global celebration of astronomy and its contributions to society and culture, will emphasize education, public engagement, and the participation of young people. There will be events at national, regional, and global levels in more than 125 countries. National nodes will prepare activities and establish collaborations in each country between professional and amateur astronomers, science centers, educators, and science communicators. (The sidebar on page 7 gives some examples.) The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has endorsed IYA2009.

**Galileo’s telescope and 100 Hours of Astronomy**

In celebration of IYA2009, the Franklin Institute in Philadelphia will be harnessing some major star power as we host a special exhibition in astronomy, *Galileo, Medici and The Age of Astronomy*, beginning in April. Created by the Istituto e Museo di Storia della Scienza in Florence, Italy, in partnership with the Franklin, this exhibition features Galileo’s original telescope. The exhibition explores the extraordinary effect that Galileo’s work, as well as that of other luminaries during the age of the Medicis, had on science and on the world.

As host of the *Galileo* exhibition, the Franklin will be the natural location for the kick-off of one of IYA2009’s 11 global cornerstone projects—100 Hours of Astronomy (100HA, www.100hoursofastronomy.org). From April 2 to 5, science centers, observatories, astronomy clubs, and other organizations around the world will participate in 100 continuous hours of public outreach events. Research observatories will host live web casts. The Sidewalk Astronomers and Astronomers Without Borders will sponsor sidewalk observing events to allow as many people as possible to look through a telescope, just as Galileo did 400 years ago.

100HA is timed for the Moon’s transition from first quarter to gibbous, good phases for early evening observing.

The Franklin is now working with...
The Franklin Institute will host the kick-off of 100 Hours of Astronomy in April 2009. Events will include an international web cast, and an event in the Franklin's Joel N. Bloom Observatory (shown). Photo courtesy the Franklin Institute

ASTC and members of the 100HA task group to launch 100HA and the Galileo exhibition with a “big bang.” Already on the agenda is a web cast that will connect science centers throughout the world, from Italy to South Africa. We are also planning a major lecture on Galileo, a public observatory event, and a special 75th anniversary show in the Franklin’s historic Fels Planetarium.

More celebrations at the Franklin

To continue the Franklin’s celebration of IYA2009 and Galileo, an ongoing lecture series is planned, with topics ranging from modern-day astronomical discoveries to conflicts between Galileo and the Catholic Church. The Franklin also plans to expand its popular monthly Night Skies observatory events. In late April, the prestigious Franklin Awards, which honor scientists who have made extraordinary contributions to their fields, will award the Bower Award and Prize for Achievement in Science to a researcher working in astronomy or a related field. In addition, the Franklin is planning a series of monthly astronomy events throughout 2009, including film screenings, special planetarium shows, ensemble music programs themed around celestial bodies, and a birthday party for the Fels Planetarium.

IYA2009 promises to be a unique global scientific effort. The Franklin is honored to be a key contributor, taking the public on a rich series of journeys among the stars.

By Walter Staveloz

ASTC and the International Year of Astronomy 2009

During the quadricentennial of Galileo Galilei’s first astronomical observations using a telescope, the International Year of Astronomy 2009 (IYA2009, www.astronomy2009.org) aims to give 10 million people the chance to look through a telescope toward the sky for the first time.

To support this effort, ASTC’s international relations department is working on two of IYA2009’s cornerstone projects—100 Hours of Astronomy (see the article beginning on page 6) and the Galileoscope program. Through the Galileoscope program, the U.S. IYA2009 national node intends to create and distribute thousands of easy-to-assemble, quality telescopes. Stephen Pompea of the National Optical Astronomy Observatory in Tucson, Arizona, is leading the project, in collaboration with astronomy education experts, optical designers, and experts in manufacturing. ASTC is helping to ensure that these telescopes, similar to the one Galileo used 400 years ago, reach people in all parts of the world. U.S. members can request a Galileoscope package from ASTC, free of charge. In return, we ask that they purchase a second package for $500 plus shipping expenses, donate it to a science center in another country, and then collaborate with that center. Each package contains 20 Galileoscopes, a Dark Skies teaching kit (including a presentation DVD, teaching materials, and a digital light meter), and a Hands-On Optics kit (including lenses and a teaching manual). ASTC will have enough supplies to support 20 international partnerships. We plan to coordinate a large-scale international event involving the Galileoscopes in late 2009. We hope that this project will strengthen links between member institutions worldwide.

Another developing project is Sound of the Stars. Scientists have recorded surface vibrations of stars and converted them so that they can be heard by the human ear. As part of a 24-hour, international event in late 2009, ASTC will encourage science centers to host workshops where children can create their own music using the sounds of the stars and then share their creations on the Internet.

With its mission of bringing the wonder of astronomy to everyone in the world, IYA2009 will work actively to achieve the United Nations Millennium Development Goals, specifically, promoting primary education, gender equality, and global development, while working to eradicate poverty. By participating in IYA2009, science centers have the opportunity to advance these goals, gain visibility, and form international and local partnerships, while positioning our field worldwide as a major partner within the scientific community.

Walter Staveloz is ASTC’s director of international relations. For more information on participating in the Galileoscope program or other projects described in this article, contact him at wstaveloz@astc.org.

Kat Stein is director of public relations and communications at the Franklin Institute, Philadelphia.
Challenging and Changing Minds: Emotional Learning and Physics Competitions

By Rachel Moll

 Build a musical instrument entirely out of food and use it to play “Twinkle, Twinkle, Little Star.” Determine the height, speed, and acceleration of a roller coaster using only simple tools. Design a homemade multimeter to measure voltage and resistance. These challenges sound formidable, and they are meant to be. They are examples of activities in two secondary school physics competitions in British Columbia (BC), Canada. However, these kinds of competitions achieve more than recognizing and rewarding top students. They are engaging and memorable learning experiences that may elicit strong emotions and change how students think about physics.

This article will describe two novel experiential physics competitions, Physics Olympics and BC’s Brightest Minds, and will use current research to speak to the impact that these kinds of events can have on student attitudes toward science. They differ from traditional science or mathematics competitions—usually paper and pencil tests comprising extremely difficult problems, where even the winning paper will score correctly on only a small fraction of questions. These kinds of activities rarely celebrate science. In contrast, experiential competitions model the kind of science learning that regularly takes place in science centers and other informal environments, particularly during events and celebrations. Students are encouraged to work in groups and to explore science concepts by participating in hands-on activities.

Annual events, in particular, can create lasting partnerships among schools, science centers, and communities. Teachers incorporate annually scheduled events into their planning, and students anxiously anticipate the opportunity to participate. Like athletics, science competitions and other events can become part of school and student culture.

As a former physics teacher and researcher interested in the impact of informal science outreach events, I was intrigued by the strong emotions elicited in physics competitions, from the combination of an experiential and competitive environment. Thus, my research has examined two local annual physics competitions and the impact these events have on student emotions and attitudes toward physics.

Experiential physics competitions

The Physics Olympics is a science outreach activity that has been organized by the Department of Physics and Astronomy at the University of British Columbia, Vancouver, for 30 years (http://noether.physics.ubc.ca/NewOlympicsWelcome.html). Junior and senior high school physics students participate in teams of five students representing their schools. Sixty teams from across the province, some traveling up to 12 hours, attend the competition. The event has become a part of the high school physics culture in the province and carries a high level of prestige.

Physics Olympics teams design two prebuilt projects and complete four onsite activities, which include quiz show events and optical mazes. Student engagement in prebuilt projects is often phenomenal, with students working for hours tweaking their hovercrafts or catapults, for example. As a new physics teacher, I was intimidated by the challenges prescribed by the rule book and hesitated to participate. I wondered, “How can I ask my students to build this when I have no ideas to offer?” However, my students’ imaginations were quickly sparked and fueled by a healthy dose of competitive spirit and the opportunity to collaborate. After my first year of teaching, I participated with my students for two years before beginning my doctoral work.

BC’s Brightest Minds is a relatively new competition that extends an already extremely popular physics event, held annually at Playland Amusement Park at the Pacific National Exhibition in Vancouver (www.pne.ca/playland/education/education.htm). The program, originally developed 21 years ago by a local teacher, began as an invitation to high school physics classes to experience and calculate the physics of amusement park rides. It has since expanded to include curriculum-specific programs for grades 4–12. In 2006, BC’s Brightest
Minds was created as a competition to challenge top high school students. The larger amusement park physics event attracts over 10,000 students each year, and 30 schools (two students per school) participate in the competition.

To compete, pairs of students experience amusement park rides, use simple tools to make measurements, and complete challenging questions using their data and observations. Learning is experiential and extends beyond the classroom, so that students can experience moments of weightlessness or centripetal force. The amusement park physics competition is a collaborative effort between local teachers, science education researchers, and the community. It also attracts a fair amount of attention from local and national media who report on the event as an opportunity for students to learn and have fun with science. This competition is an excellent model of how public spaces and organizations like science centers can work together to create annual celebrations of science learning.

**Emotional learning**

Recent research in science education is paying more attention to informal learning contexts and affective learning. I examined student experiences at the Physics Olympics and BC’s Brightest Minds competitions in a research study aimed at probing the events’ impact on students’ emotions and thus their attitudes toward science and scientific identity. Students were interviewed before and after the events and were observed while participating. Fifty students, representing five schools at the Physics Olympics between 2006 and 2008, were surveyed, and three teams of two students who competed in BC’s Brightest Minds 2007 also participated in the study.

Students expressed evidence of strong emotions of both frustration and enjoyment. Testing their prebuilt Physics Olympics activities became particularly emotional, since their prototypes, which may have worked previously, often failed during the event. Interestingly, students who appeared to express only negative emotions while competing would reflect back on the experience positively—a phenomenon encapsulated by a student who said, “It was frustrating at times, sometimes enjoyable.” For research, this raises the question: What role do negative emotions, often stimulated by competitions, play? They don’t appear to dissuade students from participating or to create negative attitudes toward science. On the contrary, student attitudes toward science were overwhelmingly positive both before and after participating. Students came away from the events describing physics as relevant, diverse, and fun.

Other results from student interviews include:

- Students were intrinsically motivated to participate and despite facing extremely difficult challenges and failure at the event, expressed keen desires to participate again. “I had so much fun last year, I thought I’d do it again this year,” said one student.
- Students felt that they became part of a physics community. One student observed, “I was kind of in awe… I thought, ‘Wow, there’s a lot of kids in physics. That’s the impression I got from seeing everyone come together.’”
- Competition activities and experiencing strong emotions were perceived as being part of the authentic practice of science.
- Participants believed they shared emotions and characteristics, such as “hardworking” and “analytical,” with scientists.
- Students learned about their own scientific identity, particularly their strengths and weaknesses. One student acknowledged, “It shows me my place in the physics world.”

Thus, by participating in emotion-charged events, students were involved in meaningful and engaging learning experiences. Some students were interviewed a year after their first Physics Olympics competition and their memories of successes and failures were sharp. One student recalled, “Last year was lots of fun… Every time we made a discovery as to how to make our [paper] tower more efficient, everyone was really excited.”

Science centers have opportunities to partner with schools and science outreach stakeholders to foster events that stimulate emotions during learning. Of particular value are annual events, such as competitions, science fairs, or celebrations, that can be closely linked to schools and thus have the potential to be built into school science culture. Future impact studies of science outreach activities should include measures to document the kinds of emotions stimulated by the events and possible impact on attitudes toward science.

Rachel Moll is a Ph.D. candidate at the University of British Columbia, Vancouver, Canada, focusing on the impact of science outreach programs.
We Threw a Party and Everybody Came:  
A Science Celebration Sampler

Whether they focus on one community or span a nation or the globe, science celebrations can help institutions broaden their audiences, form important partnerships, and raise awareness of current issues. The following initiatives illustrate some of the many ways to celebrate science.

Small Things Considered

By Vrylena Olney and Karen Pollard

What if you threw a party and no one came? What if everyone came, but hated the punch? Last March, those of us in the Nanoscale Informal Science Education Network (NISE Net, www.nisenet.org) felt a bit like nervous party hosts as we made our final preparations for NanoDays 2008.

As a network of informal science educators and researchers, we in the NISE Net had invested lots of time developing and testing public programs, exhibits, and multimedia focused on the enormous potential of something very tiny—nanoscale science, engineering, and technology (nano). We had formed new partnerships to help us make this sometimes unfamiliar subject more tangible to our audiences. But after two years of work, we needed a way to harness the power of all our science center, children’s museum, research center, and professional organization partners. We wanted a “due date” to help us focus on sharing our resources and lessons learned. For those of us in the science museum world, a series of celebrations seemed like the best kind of deadline.

Planning the party

We pictured NanoDays 2008 as a prototype year and a chance for our partners and potential partners to try presenting nano-related content in a low-risk way. Our goal was to get 30 institutions to plan and host their own community-based educational outreach events focused on nano during the period from March 29 to April 6. We would provide a NanoDays kit with resources and activities like the “tiny teacup,” which shows that properties of materials change at different scales. Our partners would agree to tell us what they did and how it went.

But back in March, it wasn’t entirely clear that anyone would come to our party. Would anyone want the NanoDays kits we had created? Would visitors be interested? Would the kits provide our partners with the tools they needed?

Nano nationwide

It seems that the answer to all of these questions is yes. We quickly realized that demand would far outstrip our intended supply of 30 kits. By January 2008, 100 individual kits were prepared and mailed to informal science institutions (ISIs) and research centers across the country. A digital version of the kit was downloaded from our web site over 100 times, representing approximately 50 more participating institutions.

By early August, we had received reports on our web site from 58 institutions in 32 U.S. states, Puerto Rico, and Washington, D.C., that had hosted NanoDays events. Those institutions reached nearly 50,000 people. The kit was our NanoDays superstar, and we received many enthusiastic reports about it. The University of New Mexico in Albuquerque wrote, “The kits are fabulous… It was much easier for graduate students to add to the kit with their own ideas than try to develop a kit themselves.”

We were also happy to hear about the ways that large and small institutions adapted NanoDays to fit their community, audiences, and capacity. While almost all institutions presented hands-
on activities from the kit, many added other activities, forums, presentations, movies, and exhibits. The Queens Library in New York held a lecture and created a book display with more than 30 titles on nano. The Discovery Center Museum in Rockford, Illinois, and the University of Wisconsin Nanoscale Science and Engineering Center held live demonstrations with MacroMan and NanoBoy. The Museum of Science, Boston, showcased all their nano-related work in one big kick-off day, with events such as the Amazing Nano Brothers Juggling Show and two talks from nano pioneer Don Eigler.

Brindha Muniappan of the Museum of Science, Boston, helps a young visitor with a stained glass activity. Nanoparticles play a role in determining the colors of stained glass. Photo courtesy Museum of Science

Of the participating ISIs, 70 percent reported having research center, university, or industry partners. For example, the ScienceCenter in Ithaca, New York, used NanoDays as a chance to build its partnership with Cornell University’s NanoScale Facility. The Da Vinci Discovery Center of Science and Technology in Allentown, Pennsylvania, partnered with Lehigh University materials science students and said the collaboration “was truly the reason our event was so successful. [Having] college students teaching the public… was an incredible experience for everyone.”

Looking ahead to NanoDays 2009
The evaluation team is now gleaning lessons learned from the online reports, but the NanoDays team, headed up at the Science Museum of Minnesota, St. Paul, is already diving into planning our second NanoDays, scheduled for March 28 to April 5, 2009. There will be an updated NanoDays kit for new participants. Institutions that hosted NanoDays last year will get extra materials and a new planning guide, which incorporates some lessons learned. This year, we’ll also have a slew of new, in-depth programs, including interpretative carts and stage demonstrations, available through www.nisenet.org.

We’re looking forward to seeing how NanoDays develops in future years. But mostly we’re pleased that we were able to help ISIs tackle subjects that may have seemed intimidating at first and help researchers discover new tools for communicating their work.

Vrylena Olney is assistant project manager of the NISE Net at the Museum of Science, Boston. Karen Pollard is senior exhibit developer at the Science Museum of Minnesota, St. Paul, and leads the NanoDays work of the NISE Net.

ESW 2008 trumpeted the theme “No Child Left Inside,” a rallying cry to draw young people outdoors to explore our churning atmosphere, flowing rivers, and shifting landscape. The celebration urged everyone to explore informal education opportunities, examine museum and science center exhibits, and experience Earth science firsthand. This event is organized each year by the American Geological Institute (AGI) to encourage better understanding of the geosciences and stewardship of the planet.

Events for the Earth
Museums and science centers have played a large role in this impact, holding events to help their visitors see how Earth science applies to the world where they live. For example, Chabot Space & Science Center in Oakland, California, hosted an Earth Science Day community celebration. Visitors learned about renewable energy as they competed in Chabot’s popular Lego Solar Car Challenge. Chabot partnered with the East Bay Regional Parks to provide naturalist-led hikes in the redwood forest surrounding the center. Dressed in period costumes, Gold Rush outreach docents from the Oakland Museum of California taught visitors about the history of California’s

Doors Wide Open for Earth Science Week

By Geoff Camphire and Adrienne Barnett

Science centers and museums were among the most important destinations for participants in the 11th annual Earth Science Week (ESW, www.earthsceiwk.org), October 12 to 18. Institutions all over the United States and the world participated in the event.
Families learn about renewable energy while racing solar cars during Earth Science Week at Chabot. Photo courtesy Chabot Space & Science Center

Gold Rush as well as how to pan for gold. The Bay Area Red Cross had a table focusing on earthquake preparedness. Other activities included rock, mineral, and meteorite identification; earthquake shake table challenges; and composting demonstrations.

In addition, the Museum of Science & Industry (MOSI) in Tampa hosted special hikes through the back woods on their campus, as well as tours of some of Florida’s underground caverns and freshwater habitats. Fermi National Accelerator Laboratory—Leon M. Lederman Science Education Center in Batavia, Illinois, invited the public to dig for bugs as part of an insect survey. At the Boonsboro Museum of Discovery in Dayton, Ohio, visitors made their own model volcanoes and learned about clouds, weather, erosion, and soil.

The Vermont Marble Museum in Proctor hosted quarry tours in collaboration with OMYA, Inc.; the Vermont Geological Survey; and the Vermont Geological Society.

Past years have also proven to be successful, with events spanning the globe. In 2007, for example, the Ontario Science Centre, Toronto, Canada, invited students in grades 4–12 to a lecture series by Canadian professors and other geoscience professionals. On the other side of the world, the Australian Fossil and Mineral Museum in Bathurst offered curator-led museum highlights tours and half-price admission during the week. Plus, the Smithsonian Institution in Washington, D.C., hosted a polar science symposium to celebrate International Polar Year and ESW.

Institutional impact

ESW has expanded in reach and impact during the decade since its inception. The earliest celebration, in 1998, was a matter of sharing a few scant resources among a small number of educators. By 2002, AGI was distributing 8,000 kits a year, and participation has roughly doubled since then.

In 2007, the most recent year for which data are available, an estimated 5 million people learned about this public awareness campaign from dozens of media outlets from the Los Angeles Times to NBC. Also in 2007, an independent contractor conducted a poll of 2,300 participants, drawing from the mailing list of our monthly ESW Update electronic newsletter. The evaluation showed that 7 in 10 participants gave high marks to ESW, rating its usefulness as either “excellent” or “good.” Asked to rate their level of activity, 74 percent of respondents said they were either “more active” or “about the same” in their participation in ESW 2007 than the previous year.

What you can do

It’s not too early to start planning for ESW 2009, scheduled for October 11 to 17. How can your institution get involved? Visit www.earthsciweek.org to find ways to participate and ideas on how to form partnerships. The website also offers a planning checklist, tips for fundraising, ideas for events, recommendations for working with the news media, downloadable logos and images, and the ESW Update electronic newsletter.

Earth Science Week exposes visitors to the work of researchers including geoscientists, who study Earth materials, such as the quartz found in ordinary sand. Photo copyright ASARCO

Every day, we see headlines about natural disasters, climate change, and rising energy needs. Creating an event at your institution is a great way to bring awareness to these issues and demonstrate how Earth science applies to everyday life, while highlighting existing programming and forging new partnerships.

I Geoff Campshire is outreach manager at the American Geological Institute, Alexandria, Virginia. Adrienne Barnett is Earth science instructor at Chabot Space & Science Center, Oakland, California.

Cooking Up Science in Cambridge

By John Durant and P.A. d’Arbeloff

Recipe:
1. Take one science city.
2. Carefully extract the juiciest parts, making sure to retain all the most en-

Making Earth science larger than life, a child observes a composting worm during Earth Science Week at Chabot. Photo courtesy Chabot Space & Science Center
Susan Hockfield, president of MIT, celebrates the official launch of the Cambridge Science Festival 2008 on the front steps of Cambridge City Hall. Photo courtesy the Cambridge Science Festival

thusiastic graduate students, and as many superstar researchers and Nobel Laureates as you can find.
3. Mix thoroughly with generous quantities of actors, artists, broadcasters, critics, curators, entrepreneurs, exhibitors, impresarios, inventors, musicians, raconteurs, and writers.

4. Add a cup of civic leadership and a teaspoon of organizational flair, and bake for several months.
5. Serve as more than 200 separate courses over nine days, making sure that all sections of the community get plenty to eat.

This, in essence, is the Cambridge Science Festival (www.cambridgesciencefestival.org). The Massachusetts Institute of Technology (MIT) Museum, Cambridge, launched our first Cambridge Science Festival in April 2007, in the belief that what festivals have long done for art, literature, and music they can—and should—do for science and technology. Our aim was to throw open the laboratory doors in our particular science city, so that the whole community could celebrate what makes Cambridge—a small, not particularly prosperous city in Massachusetts—a truly world-class place.

A science stew
We have been excited by the positive response to the Cambridge Science Festival from the wider community. During our first festival, about 15,000 people attended 150 different events. In the second year, we almost doubled our attendance, as an estimated 28,000 people came to more than 200 events in 45 venues. Each year, the festival benefits from experience and momentum. Presenters become better at offering science to a broader audience in creative ways, and neighbors buzz about what surprises next year’s event might hold. Highlights this year, from our point of view, included Lunch with a Laureate, a series of five luncheon conversations be-
tween a Nobel Prize–winning scientist and the public; Powers of Ten, an oratorio about scale in the universe performed by the North Cambridge Family Opera; QED, a play about physicist Richard Feynman (MIT Class of 1939), produced by the Catalyst Collaborative (a partnership between MIT and a local theater company); and the Curiosity Awards, which honored more than 100 students for essays and artwork expressing their curiosity.

The MIT Club of Boston’s John Dolun prepares for a chemistry show before a standing-room-only crowd at the Cambridge Science Festival 2008. Photo courtesy the Cambridge Science Festival

Brewing up benefits
Why would the MIT Museum—a relatively small museum of science and technology—take the lead in organizing a big initiative like this? First, the Cambridge Science Festival is an ideal flagship for MIT’s community outreach. Second, the MIT Museum is perfectly positioned to do something like this, with one foot firmly planted in the professional world of science and technology and the other foot equally firmly planted in the wider community. Third, organizing a festival is a great way to establish a wide network of partners across the community. Through the festival, our museum now works actively with several others (including the Harvard Museum of Natural History, Cambridge, and the Museum of
ence and not likely to visit science museums. Admittedly, the audience for our Lunch with a Laureate tended to have an established interest in science. But this was not so for the Science of Wine, or its sequel, Brewing Innovation. Sure, our full houses on those nights were enticed by the wine and beer tasting that followed the lectures, but attendees also soaked up the scientific research being done with yeast. Many of them were first-time visitors who enjoyed this slightly unusual introduction to the museum. A survey given to every visitor showed that they overwhelmingly felt that they had both benefited from the programs and enjoyed themselves.

We’re committed to cooking up the Cambridge Science Festival annually. (The 2009 festival is set for April 25 to May 3.) And we’re happy that other cities across the United States appear to be developing a taste for the same sort of thing. We’re actively collaborating with colleagues on the San Diego Science Festival, planned for March 2009. We’re also looking to the possibility of creating a web portal and resources to help other cities start their own science festivals. We believe ASTC-member institutions can play an important role in creating a strong network of U.S. science festivals. After all, aren’t we in the business of creatively communicating science to new audiences? If you can turn that communication into a celebration, invite a crowd, and have some fun, it’s icing on the cake.

John Durant is executive director of the MIT Museum, P.A. d’Arbeloff is director of the Cambridge Science Festival.

Celebrating Science, Enlightening Community in Gujarat

By Narottam Sahoo

Gujarat Science City (GSC, www.city.org), Ahmedabad, India, under the aegis of Department of Science & Technology, Government of Gujarat, has designed an activity calendar to celebrate science 365 days a year. Many of our events center around national and international holidays that focus on science issues. About 10 million students, teachers, science club members, media personnel, and other visitors come to GSC annually. By celebrating science on a daily basis, we aim to inspire curiosity and support lifelong learning, instill a scientific outlook at all levels of society, and raise awareness about important issues and their solutions, particularly among the younger generation. Our events also help to build capacity among different scientific organizations and experts, attract visitors and the media to GSC to celebrate a common cause, and add value for repeat visitors.

Celebration on a global scale
In addition to celebrations like India’s National Science Day (February 28) and National Technology Day (May 11), we regularly host programs to commemorate United Nations observances and other international holidays. Accord-
ing to Shri Mukesh Ved, executive director of GSC, “The celebration of important United Nations events helps us to raise the awareness on global issues at a local platform and vice versa.” Among the international holidays we observe are:

- World Wetlands Day (February 2)
- International Women’s Day (March 8)
- World Forestry Day (March 21)
- World Water Day (March 22)
- World Meteorological Day (March 23)
- World Health Day (April 7)
- Earth Day (April 22)
- World Telecommunication and Information Society Day (May 17)
- International Day for Biological Diversity (May 22)
- World Environment Day (June 5)
- World Population Day (July 11)
- International Literacy Day (September 8)
- International Day for the Preservation of the Ozone Layer (September 16)
- International Day of Peace (September 21)
- World Habitat Day (first Monday in October)
- World Space Week (October 4–10)
- International Day for Natural Disaster Reduction (second Wednesday in October)
- World Food Day (October 16)
- World Science Day for Peace and Development (November 10)
- World AIDS Day (December 1).

For example, for World Environment Day 2008, GSC organized several activities around the theme “Kick the Habit! Towards a Low Carbon Economy.” We involved scientific organizations, policy makers, the media, and science activists in the celebration, which included poster painting, essay writing, elocation, tree planting, green quiz and puzzle competitions, screenings of biodiversity films, and a day-long workshop on climate change. About 1,600 students and teachers took part in the event, which received in-depth coverage in both print and electronic media.

**Year-long celebrations**

GSC, in association with National Council of Science & Technology Communication (NCSTC) and Vigyan Prasar, Department of Science & Technology, Government of India, has also observed several year-long celebrations.

In 2004, GSC celebrated the Year of Scientific Awareness by training teachers to bring nature activity camps, science demonstrations, and other activities back to their local communities. GSC celebrated 2005 as the World Year of Physics by designing and producing 92 radio episodes on Einstein and relativity. The program was regularly broadcast on 15 radio stations throughout the western region of the country.

GSC has also hosted celebrations for Nurturing Nature for Our Future (2006), the Year of Science (2007), and the International Year of Planet Earth (2008). In preparation for the International Year of Astronomy 2009, we are designing special astronomy Olympiads to popularize astronomy on a grassroots level. We are also preparing community members to view the total solar eclipse on July 22, 2009.

**The value of science celebrations**

GSC follows up with participants after each of its programs. We have observed that the celebration of science programs effectively improves the learning and teaching of science and community awareness at large. Celebrations give participants a clear direction for engaging their communities to take action.

We found evidence of such positive impacts when we evaluated our last student vacation training program on bioresources, organized to mark the International Day for Biological Diversity on May 22, 2006. Most of the participating students have now completed their Standard XII examinations with distinction and are pursuing careers in science. These students are also still taking active part in educating their communities on bioscience issues.

According to Shri Raj Kumar, secretary of the Department of Science & Technology, Government of Gujarat, and member secretary of GSC, “[science celebrations] shape minds and meaningfully connect our communities to the world around us, reaching students, teachers, and families with the fascination and promise of careers in the sciences.”

The celebration of science at GSC is an ideal way to improve science literacy, raise awareness, and encourage young people to pursue science and technology careers. We inspire participants to push their potential to the limit and to make the state and nation stand tall and proud in the world.

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**Narottam Sahoo** is senior scientist at Gujarat Science City, Ahmedabad, India. He may be reached at narottam.sahoo@gmail.com.
I open email to ASTC

More than 250 informal science education (ISE) professionals gathered in Washington, D.C., July 25–26, for an ISE PI Summit, organized on behalf of the National Science Foundation (NSF) by the Center for Advancement of Informal Science Education (CAISE). Of the participants, 176 were principal investigators (PIs) of NSF grants, together representing 190 projects, many based in ASTC-member science centers and museums.

The summit, held in part at the National Zoo, provided updates on NSF directions from Cora B. Marrett, assistant director for education and human resources; Joan Ferrini-Mundy, division director, Division on Research on Learning in Formal and Informal Environments (DRL); and ISE program officers. The Framework for Evaluating Impacts of ISE Projects (http://insci.org/docs/Eval_Framework.pdf), released earlier this year by NSF, was the subject of a plenary session and discussion groups. Members of the Visitor Studies Association (VSA) led a series of evaluation workshops. Discussion groups covered topics ranging from financial practices to public participation in research.

Visit http://insci.org/programs/summit2008 to see the summit program, a list of participants and their projects, and other material.

CAISE works across the ISE field to gather and communicate evidence of the contributions of informal science education and to offer professional development opportunities for those working with and seeking NSF support. Founded in 2007, CAISE is a partnership among ASTC, VSA, Oregon State University (OSU), and the University of Pittsburgh Center for Learning in Out-of-School Environments (UPCLOSE).

CAISE Fellows Selected

The first cohort of CAISE Leadership & Diversity Fellows, selected in June, participated in the ISE PI Summit, July 25–26, and a July 24 presummit workshop. The CAISE Fellows Program aims to broaden participation by and build capacity of ISE professionals from underrepresented groups and underrepresented regions of the United States. The program is structured around knowledge-building, networking, and mentoring activities that prepare CAISE Fellows to be leaders in the field.

The 2008–2009 CAISE Leadership & Diversity Fellows. (Front, left to right): John Baek (manager, CAISE), Shibata, Kimura, Preeti Gupta (chair, CAISE Leadership & Diversity Task Force), Soontornvat, and Law. (Back, left to right): Ellen McCallie (director, CAISE), Greene, Marshall, Adams, Garlick, Nesbit, and Martell. Photo by Marti Louw
The CAISE Fellows are
• Jennifer Adams, Brooklyn College-CUNY, New York
• Sarah Garlick, Geoscience Outreach Foundation, Intervale, New Hampshire
• Kantave Greene, Jackson State University, Jackson, Mississippi
• Ka’iumu Kimura, ‘Imiloa Astronomy Center, Hilo, Hawaii
• Katherine Law, Our Lady of Holy Cross College, New Orleans, Louisiana
• Sherry Marshall, Oklahoma Museum Network, Oklahoma City
• Sandra Martell, University of Wisconsin–Milwaukee, Wisconsin
• Trevor Nesbit, ECHO Lake Aquarium and Science Center, Burlington, Vermont
• Hi’ilani Shibata, Bishop Museum, Honolulu, Hawaii
• Christina Soonternvat, Austin Children’s Museum, Texas.

For more information on this year’s Fellows, visit http://insci.org/programs/fellows/2008-09.

Three Exhibitions: Two Stellar, One Wild

Scheduled to coincide with the International Year of Astronomy 2009 (IYA2009), Giant Worlds: A Voyage to the Outer Solar System began its ASTC tour on October 1 at Space Center Houston, Texas. The 3,500-square-foot exhibition, developed by the Space Science Institute, Boulder, Colorado, explores the origins of solar systems, the formation of stars and planets, and the conditions necessary for life through interactive and multimedia experiences. Visitors travel to the giant worlds of our solar system, visit the bridge of a futuristic spaceship, and learn about the National Aeronautics and Space Administration (NASA) Juno mission to Jupiter. NASA and NSF provided major funding for the exhibition.

Also in celebration of IYA2009, the Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts, is developing a new traveling exhibition, Black Holes: Space Warps and Time Twists, due to open in June 2009 at the Museum of Science, Boston. The 2,500-square-foot exhibition will engage visitors in active learning about the most mysterious objects in the universe. Along the way, they’ll explore the nature of scientific discovery and the size, scale, and structure of the universe. The national tour will begin in late 2009.

Wild Music: Sounds & Songs of Life opened October 1 at the Virginia Living Museum, Newport News, the latest stop on its national tour. The 4,000-square-foot exhibition explores the biological origins of music and its many manifestations, from bird song to bullfrog choruses to bamboo flutes. Wild Music is a production of the Science Museum of Minnesota, St. Paul; ASTC; and the University of North Carolina at Greensboro School of Music, with major support from NSF.

For more information or to book any of these exhibitions, visit www.astc.org/exhibitions or contact Wendy Hancock, 202/783-7200 x117.
Spotlights

By Emily Schuster

TRIPLE PLAY—The Children’s Museum of New Hampshire opened its new facility in Dover, tripling its exhibit and program space to 20,000 square feet. The former Children’s Museum of Portsmouth began searching for a larger building in the mid-1990s and signed a 60-year lease for the Butterfield Building in Dover in 2005. Following a $3.7 million renovation of the 1929 building, the new facility opened on July 23.

The museum features several new exhibitions. In The Cochecho System, which highlights the museum’s new location on the Cochecho River, visitors can examine a naturalist’s field station, help an osprey build its nest, or explore a historic mill to learn about the river’s role in Dover’s textile manufacturing history. In another new exhibition, Build It, Fly It, visitors can construct their own flying machines, crank them up to the museum’s rafters, and launch them into the air. The exhibition encourages visitors to redesign their creations if they flop rather than fly. Visitors to One World can take a walk in someone else’s shoes—literally—by trying on footwear from Bolivia, Japan, Germany, Morocco, Greece, and the North American Arctic.

Several old favorites from the former site in Portsmouth have been expanded and updated. In the Dino Detective exhibit, young visitors can dig for Triceratops bones and examine dinosaur teeth and claws. Children can also climb inside the Yellow Submarine and take a turn at the wheel or peer through the periscope. Primary Place offers a train table, hand puppets, and wooden play sculptures for children under 3.

The museum has applied for Leadership in Energy and Environmental Design (LEED) certification. Staff are now developing signage and hands-on modules to turn the building itself into an exhibition on sustainability.

Details: Denise Doleac, director, ddoleac@childrens-museum.org; www.childrens-museum.org

MEASURE FOR MEASURE—How can you turn a lesson about centimeters, grams, and milliliters into an exciting adventure? Try putting it on a deserted island. In Measure Island, a new traveling exhibition at Questacon in Canberra, Australia, visitors can explore an island rain forest, where each of the 24 exhibits is presented as a monument or statue built by a fictional, ancient civilization. A boy named Archy and his dog, Cubit, guide visitors through the 5,400-square-foot exhibition.

Several of the exhibits demonstrate how scientists use measurement in the field. In Barrels of Beasts, visitors can estimate the number of balls in a barrel using the tag-and-recapture technique that biologists employ to measure animal populations. When visitors walk across Stressed Out Bridge, lights illuminate their footsteps in a colorful demonstration of the importance of stress points to engineers.

Other exhibits use games to teach important measurement concepts. In Go with the Throw, visitors can toss rings at a target to learn the difference between accuracy and precision. Children can sort statues by height, width, or cuteness in Order in the Court, demonstrating the difference between objective and subjective measurements.

Questacon collaborated with Australia’s National Measurement Institute on one exhibit, a computer kiosk that shares current measurement research.
In the You’re So Vane exhibit in Questacon's Measure Island, young visitors discover how different-sized heads and tails affect the function of a weather vane.

The U.S.$1 million exhibition opened on July 31 and will remain at Questacon until early 2010 before beginning a nationwide tour.

Details: Stuart Kohlhagen, manager, Questacon Research and Development, skohlhagen@questacon.edu.au; http://measureisland.questacon.edu.au

SCIENCE AND THE CITY—Science is in the spotlight in Chicago, thanks to the year-long celebration Science Chicago: Life’s a Lab. Launched in September, the initiative comprises hundreds of programs celebrating Chicago’s scientific resources and promoting science education and careers.

A student from the Project Exploration summer program helps a young visitor examine crocodile teeth at the official press announcement event for Science Chicago in July. Photo courtesy Science Chicago

The Museum of Science and Industry, Chicago, is leading the effort, with over 140 partners. Museum president and CEO David Mosena said, “Science Chicago will demonstrate that science isn’t just something learned in a class or a lab, but is something that happens all around us and has real impact on our lives.”

The initiative will offer programs on an almost daily basis through August 2009. On Science Saturdays, the public can tour research laboratories, nature preserves, and universities to learn about such topics as robotic surgery or Chicago’s geology and geography. Science Conversations bring the public and researchers together to discuss issues like climate change and genetic engineering. Monthly Junior Science Cafés enable teens to speak directly to scientists about their research and careers. Hands-on science festivals called Neighborhood Lab Fests will be held in schools, parks, and libraries in 2009. Science Chicago is also developing resources to help teachers bring real-world science into their classrooms.

Science Chicago’s Board of Advisors is chaired by Walter Massey, former head of the National Science Foundation, and Arthur Sussman of the MacArthur Foundation. Mosena is vice-chair. Chicago scientists make up the initiative's Council, chaired by Nobel Laureate Leon Lederman of the Illinois Institute of Technology.

Other ASTC members participating in Science Chicago include the Adler Planetarium and Astronomy Museum, Chicago Children’s Museum, the Field Museum of Natural History, the International Museum of Surgical Science, and the Notebaert Nature Museum, all in Chicago; Fermi National Accelerator Laboratory in Batavia, Illinois; SciTech Hands-On Museum in Aurora, Illinois; and the American Association for the Advancement of Science, based in Washington, D.C.

Funders of the $5 million initiative include the John D. and Catherine T. MacArthur Foundation, the Searle Funds at the Chicago Community Trust, Abbott, the Boeing Company, Illinois Tool Works Inc., and Motorola.

Details: Cheryl Hughes, executive director, info@sciencechicago.com; www.sciencechicago.com

Grants & Awards

On July 22, the Institute of Museum and Library Services (IMLS) announced 154 Museums for America grants, totaling $16.9 million. (All awards require matching funds.) Among the recipients were the following ASTC members:

- **Cape Fear Museum of History and Science**, Wilmington, North Carolina: $150,000 to revise and update its core exhibition, Cape Fear Stories.
- **Children’s Discovery Museum**, Normal, Illinois: $147,267 to design, construct, and install Imagination Theatre, a performing arts stage and puppet theater.
- **Creative Discovery Museum**, Chattanooga, Tennessee: $150,000 to support Good for You, an exhibition about healthy eating and physical activity.
- **Da Vinci Discovery Center of Science and Technology**, Allentown, Pennsylvania: $104,048 to expand its Science Preschool Inquiry for Little Learners (SPIll) program.
- **Detroit Science Center**, Michigan: $147,000 to expand school community outreach activities.
- **Discovery Center at Murfree Spring**, Murfreesboro, Tennessee: $83,918 to launch PlaySpace2, an expansion of an early childhood hands-on exhibition area.

- **Discovery Center Museum**, Rockford, Illinois: $135,250 to support Fit Families, an initiative to combat childhood obesity.
- **Louisiana Children’s Museum**, New Orleans: $150,000 to support an interactive exhibition, New Orleans: Proud to Call It Home.
- **Museum of Science & Industry (MOSI)**, Tampa, Florida: $149,736 to install exhibits on medical technology in its exhibition Amazing You.
- **Natural History Museum of Los Angeles County**, Los Angeles, California: $109,500 to begin an educational initiative, where students draw artistic inspiration from the museum’s collections.
- **Newark Museum Association**, New Jersey: $111,700 to increase availability of its permanent paper collection.
- **Orpheum Children’s Science Museum**, Champaign, Illinois: $88,258 to implement LEAP for the Kids, a middle school outreach program.
- **San Diego Society of Natural History**, California: $38,148 to create an online database of its plant specimen records.
- **The U.S. Space and Rocket Center**, Huntsville, Alabama: $140,800 to develop two exhibits for its new Davidson Center for Space Exploration.
On September 15, Mary Sellers became the new CEO of the South Florida Science Museum, West Palm Beach. Sellers had served as president and CEO of the Science Center of Iowa (SCI), Des Moines, for nine years. While at SCI, she was a member of ASTC’s Board of Directors. Curt Simmons is now acting as CEO of SCI until a permanent replacement is named.

Ann Follin has been appointed director of Tekniska Museet, Stockholm, Sweden. Follin spent the past six years working as director general of Swedish Travelling Exhibitions in Visby. She succeeds retiring director Anne Louise Kemdal.

The Musée de la Nature et des Sciences, Sherbrooke, Québec, Canada, selected Marie-Claude Bibeau as general manager. She had previously worked as project leader for the Canadian International Development Agency and assistant director of Sherbrooke, Cité des Rivières.

In Memoriam: Joel N. Bloom, ASTC Founder

With great sadness, we report that Joel N. Bloom, a founder of ASTC and its first board chairman, died on September 23 after a long illness. He was 83.

Bloom played a pivotal role in ASTC not only as a founder, but also as a passionate champion of science centers among national leaders and within the museum world. When he received the ASTC Fellow Award for Outstanding Contribution in 1988, we recognized “his sage leadership and distinguished service to the science museum community,” saying, “His unique contributions as a persuasive advocate and valued mentor have significantly advanced the science museum profession and the association. We salute his dedication, his vision, and his chutzpah.”

Bloom was director and president of the Science Museum and Fels Plan-
tarium of the Franklin Institute in Philadelphia from 1969 until he retired in 1990. He was also the first science museum president to serve as president of the American Association of Museums (1988–92).

Many remember Bloom as an inspirational mentor who was particularly supportive of women. He influenced many people who went on to become innovators in the museum field. "Joel was a mentor of mentors," said museum consultant Alan J. Friedman. “I have no doubt several generations of museum leaders are guided by Joel’s wisdom, whether they know it or not.”

We extend our deepest sympathy to the Bloom family.