YOUTH INSPIRED CHALLENGE
Year Two Report

Inspiring youth through hands-on STEM experiences
What is the Youth Inspired Challenge?

The Youth Inspired Challenge (YIC), organized by the Association of Science-Technology Centers (ASTC), is a major initiative designed to expand the impact of science centers and museums on youth engagement in meaningful science, technology, engineering, and math (STEM) experiences, and to assist today’s youth to become the innovative and creative thinkers needed for the 21st century workforce.

YIC is a three-year initiative, launched in September 2010, and open to ASTC’s global membership. The “challenge” calls for science centers and museums to provide at least 2 million hours of STEM-centered youth development programming to at least 25,000 youth over a three-year period.

The goals of YIC are to increase the STEM literacy of the world’s youth and to expand opportunities for STEM engagement of underrepresented groups, including minorities, women, and youth with disabilities. ASTC collects and analyzes data from participating institutions, and catalogs and shares best practices for improving informal STEM education. YIC was inspired by the commitment of leaders around the world to strengthen the STEM knowledge and skills of today’s youth to build tomorrow’s workforce. In supporting YIC, U.S. President Barack Obama stated, “I applaud the Association of Science-Technology Centers and its members for lending their resources, expertise, and their enthusiasm to the task of strengthening America’s leadership in the 21st century by improving education in science, technology, engineering and math.”

Now, more than 100 science centers and museums are participating in YIC, representing seven countries and all 50 U.S. states. Eligible programs meet the following criteria:

- Serve youth ages 10–19
- Provide at least 6 hours of hands-on STEM learning and/or skills development
- Encourage youth to pursue STEM studies and careers
- Limit student-to-staff ratio to 25–1 to maximize impact
Year 2: The State of the Challenge

High levels of interest and participation in YIC led to the original goals being surpassed in the first two years of the three-year challenge. Participating programs reported engaging 75,000 youth in more than 1 million hours of STEM programming in 2012.

Total YIC Program Hours

Year 1: 700,000
Year 2: 1,395,000
Cumulative: 2,095,000 hours
Year 3 goal: 2,000,000 hours

Youth Participation in YIC Programs

Year 1: 14,000
Year 2: 59,000
Cumulative: 73,000 youth
Year 3 goal: 25,000 youth

Average Program Impact

102 youth per program
80 hours of contact per student
=2 full school weeks of hands-on STEM instruction
About YIC Programs

One of YIC’s objectives is to gather information about the existing STEM-centered youth development programming offered by ASTC-member institutions and, in turn, promote their growth and support the development of new programs. There are no content or format requirements for YIC programs. The programs range in format from one-day events to summer camps to year-long experiences. Despite the diversity of the programming, there are core program types and components that leverage the strengths of the science center environment and expertise, and build on effective practices in STEM education and positive youth development. The most common program types and components are highlighted in the figures to the right.

Since each science center develops its YIC programming in response to a combination of best practices, community need, and institutional expertise and focus, participating youth experience high quality, locally relevant STEM learning experiences. This year’s YIC survey asked participating institutions to report the positive outcomes of their various programs over the past five years. Five themes emerged from their responses:

- **Program expansion**, including growth in the number of youth served, age range, and length of programs.
- **Engaging and inspiring youth**, helping them better understand themselves and the world through science literacy.
- **Increased community engagement** through creation of links between visitors and youth, and encouraging youth to be ambassadors to their individual communities.
- **Increased funding**, allowing for general program improvement, as well as more support underwriting participation of youth with financial need.
- **Career achievement**, with many programs reporting that participating youth have been accepted to college or received job offers in STEM fields based on their experiences in YIC programming.
YIC Program Funding

Participating YIC institutions are located in communities worldwide and operate under a variety of funding environments that reflect their geographical diversity. In order to make programs accessible to as many youth as possible, institutions report a variety of funding streams to support delivery of affordable STEM-centered youth development programs.

YIC programs are excellent examples of public-private partnerships, with most programs relying on a combination of tuition fees, corporate sponsorships, and public support for operations.

McAuliffe-Shepard Discovery Center

The McAuliffe-Shepard Discovery Center in Concord, New Hampshire offers hands-on summer space science camps for youth ages 5-17 for six weeks each summer. There are several different camps with new topics and activities added every year. This year, a new program opened where youth ages 6-12 join an international expedition concerning global challenges.

The summer camps are just one example of a variety of inspiring youth educational STEM programming offered by the McAuliffe-Shepard Discovery Center. Efforts are made to support underrepresented groups wishing to participate in such programming as well. In 2012, the center was able to raise funds for camp scholarships and transportation through an auction, gala, and a foundation grant. The scholarships were made available to the youth of Concord’s New Americans community, a community of resettled refugees. Through the scholarships, Bhutanese children were able to participate in STEM summer camps with their peers.

The youth participating in the summer camps delighted in the wealth of hands-on activities, such as building and launching rockets and creating protective landing gear for a simulated Mars landing!
About Youth Served by YIC Programs

Since the inception of the field, science centers have been dedicated to bringing the wonder of science learning to their audiences, reaching diverse populations regardless of need and difference. Through YIC, ASTC has the opportunity to document the efforts of participants’ programs to engage youth from underrepresented and underserved communities, as reflected in the figure below. The most popular targets of the participating YIC programs include girls, those from low socioeconomic status (SES) backgrounds, and minorities.

Expanding Your Horizons at Sci-Quest Hands-On Science Center

The Sci-Quest Hands-On Science Center in Huntsville, Alabama hosts a conference as part of the Expanding Your Horizons (EYH) program.

The conferences are for middle and high school girls with the goal to inspire girls to pursue STEM careers. Conferences in the EYH network are hosted in 31 U.S. states as well as in Europe and Asia. Sci-Quest’s conference provides access to STEM role models and hands-on activities while nurturing confidence and encouraging girls to persevere in STEM coursework. Sci-Quest offered local girls five different conferences from which each was able to choose two to attend.

Last year, Sci-Quest’s EYH conference had its biggest turnout yet with 1,317 middle school girls and 105 teachers and chaperones in attendance. Each day featured a keynote presentation by a female professional in a STEM field to introduce a range of careers to the students in attendance and encourage them to continue to explore STEM areas. All speakers at the conference shared stories of their own paths to STEM careers, what success means to them, and reminded girls that there are no boundaries to what they can grow up to be. The conference also featured a lunch panel with three female professionals discussing high school and college experiences, what their jobs are like, and how they maintain a good work-life balance.
Sharing the Inspiration

In addition to the great impacts we have documented in the second year of YIC, we have also seen some exciting changes to ASTC’s activities as a result of this initiative, particularly in our conference and advocacy activities.

Youth Voice at the ASTC Annual Conference
Since the launch of YIC, a number of youth programs professionals have been working with ASTC staff to explore new opportunities to share best practices and promote youth voice at the ASTC annual conference. Beginning at ASTC 2011 in Baltimore, MD, leaders of the ASTC Youth Programs Network have coordinated a full agenda of youth development and youth-led programming at the conference. Teams of youth facilitators and explainers from up to eight science centers participate in a leadership camp-in at the local conference host museum, lead a two-hour session on best practices in youth programs, and facilitate demonstrations in the ASTC Resource Center in the exhibit hall.

Taking Our Stories to Capitol Hill
One of the most exciting outcomes of YIC has been the opportunity to expand our advocacy activities to support the first ASTC-sponsored youth visits to Capitol Hill. In June 2012, two teams of youth from ASTC member institutions – The Franklin Institute in Philadelphia, PA and the New Jersey Academy of Aquatic Sciences in Camden, NJ – visited offices of Rep. Fattah (PA), Sen. Casey (PA), Sen. Toomey (PA), Sen. Lautenberg (NJ), and the Committee on Science, Space, and Technology to increase awareness of the impact of YIC programs.
Youth Inspired around the World

Young people today are eager to employ the most advanced tools of the information age to raise awareness and inspire action concerning global challenges, particularly those related to sustainability of the planet. Science centers and museums have a rich history of leadership in science education and in raising public awareness around these critical issues, placing a special emphasis on engaging youth in the processes of learning and employing science-based knowledge in the broadest possible interests of society. ASTC’s Science Centers and the Engagement and the Rio Summit (SCenaRioS) project—funded by UNESCO and FIOCRUZ—brought together youth from 12 science centers around the world to develop new ideas and solutions on five global sustainability issues:

- **Water and Life**: Guangdong Science Centre, China; Science Centre Singapore, Singapore; QUESTACON, Canberra, Australia
- **Water and Costal Management**: Maloka, Bogotá, Colombia; Miami Science Museum, Florida, U.S.A.
- **Global Energy Consumption**: Canada Science and Technology Museums Corporation, Ottawa, Ontario, Canada; Chabot Space & Science Center, Oakland, California, U.S.A.; Experimentarium, Copenhagen, Denmark
- **Climate Change: Health and the Environment**: Paulo Samuel Kankhomba Secondary School, Niassa, Mozambique; Museu da Vida, Rio de Janeiro, Brazil
- **Green Energy and Sustainability**: MadaTech, Haifa, Israel; Sci-Port, Louisiana’s Science Center, Shreveport, U.S.A.

SCenaRioS program participants worked with each other using online tools, including Second Life® and video-conferencing software, to discuss one of these topics and the major issues in each of their respective communities, to help them better understand the global impacts of local solutions. Each international team produced videos and other collateral, which were shared at the Planet Under Pressure conference in London, England in March 2012 and at Rio+20, the United Nations Conference on Sustainable Development in June 2012.
Why join the Challenge?

1. YIC programs offer not only fun, engaging activities, they present the opportunity for youth from a variety of backgrounds to interact and explore STEM fields.

2. The YIC’s original goal was to engage at least 25,000 youth in 2 million hours of STEM programming over three years. Having surpassed our original goal at the end of Year Two, we are excited to continue expanding the Challenge, to see how far we can go and how many science centers, museums, and youth participants we can reach. Maximum participation in the Challenge is essential to spreading STEM programming and preparing today’s youth for tomorrow’s world.

3. We believe that inspiring our youth to pursue their education and dreams is truly invaluable, so please join us in the Youth Inspired Challenge today!

Participate and Support

Visit [www.youthinspiredchallenge.org](http://www.youthinspiredchallenge.org) to get involved in the challenge!

For ASTC Members

- Register your program via the YIC website
- Submit a profile of your YIC program for including in the YIC Showcase
- Access the YIC media kit and other materials to promote your programs

For Supporters

- Find a program near you, and get involved!
Youth Inspired Challenge Directory

**Belgium**
Technopolis, the Flemish Science Centre, Mechelen

**Bermuda**
Bermuda Underwater Exploration Institute (BUEI), Pembroke

**Canada**
Ontario Science Centre, Toronto

**India**
Gujarat Council of Science City, Ahmedabad
Tamilnadu Science and Technology Centre, Chennai

**Israel**
MadaTech, Israel National Museum of Science, Technology & Space, Haifa

**Trinidad, West Indies**
The National Institute of Higher Education Research, Science and Technology (NIHERST), D’Abadie

**UNITED STATES**

**Alabama**
McWane Science Center, Birmingham
Sci-Quest, the North Alabama Science Center, Huntsville

**Alaska**
Anchorage Museum, Anchorage

**Arkansas**
Mid-America Science Museum, Hot Springs
Museum of Discovery, Little Rock

**Arizona**
Arizona Science Center, Phoenix
The Children’s Museum Tucson, Tucson

**California**
California Academy of Sciences, San Francisco
Chabot Space & Science Center, Oakland
Columbia Memorial Space Center, Downey
CuriOdyssey, San Mateo
Exploratorium, San Francisco
Lawrence Hall of Science, Berkeley
Reuben H. Fleet Science Center, San Diego
Santa Barbara Museum of Natural History, Santa Barbara

**Colorado**
Denver Museum of Nature, Denver
Durango Discovery Museum, Durango
National Center for Atmospheric Research, Boulder

**Connecticut**
Bruce Museum, Greenwich
Connecticut Science Center, Hartford
Discovery Museum and Planetarium, Bridgeport
Yale Peabody Museum of Natural History, New Haven

**Delaware**
Delaware Museum of Natural History, Wilmington
Hagley Museum and Library, Wilmington
The Iron Hill Museum, Newark

**District of Columbia**
National Museum of Natural History, Washington, D.C.

**Florida**
Children’s Science Emporium, Boca Raton
Emerald Coast Science Center, Fort Walton Beach
Miami Science Museum, Miami
Museum of Discovery and Science, Fort Lauderdale
Orlando Science Center, Orlando

**Illinois**
Discovery Center Museum, Rockford
Peggy Notebaert Nature Museum, Chicago

**Indiana**
Science Central, Fort Wayne

**Iowa**
Family Museum, Bettendorf
Putnam Museum, Davenport
Science Center of Iowa & Blank IMAX Dome Theater, Des Moines
Science Station, Cedar Rapids

**Kansas**
Exploration Place, Inc., Wichita

**Kentucky**
Kentucky Science Center, Louisville

**Louisiana**
Sci-Port: Louisiana’s Science Center, Shreveport

**Maine**
Maine Discovery Museum, Bangor

**Maryland**
Maryland Science Center, Baltimore

**Massachusetts**
Museum of Science, Boston
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<tr>
<th>State</th>
<th>Museum Name</th>
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<tr>
<td>Minnesota</td>
<td>Duluth Children’s Museum, Duluth</td>
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<td>Mississippi</td>
<td>INFINITY Science Center, Stennis Space Center</td>
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<td>Mississippi Museum of Natural Science, Jackson</td>
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<td>Missouri</td>
<td>Bootheel Youth Museum, Malden</td>
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<td>Discovery Center of Springfield, Inc., Springfield</td>
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<td>Montana</td>
<td>Exploration Works, Helena</td>
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<td>Museum of the Rockies, Bozeman</td>
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<td>SpectrUM Discovery Area, Missoula</td>
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<td>Nebraska</td>
<td>Children’s Museum of Omaha, Omaha</td>
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<td>Durham Science Discovery Center, Omaha</td>
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<td>Edgerton Explorit Center, Aurora</td>
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<td>Nevada</td>
<td>Discovery Children’s Museum, Las Vegas</td>
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<td>Terry Lee Wells Nevada Discovery Museum, Reno</td>
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<td>New Hampshire</td>
<td>McAuliffe-Shepard Discovery Center, Concord</td>
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<td>New York Hall of Science, Queens</td>
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<td>Sci-Tech Center of Northern New York, Watertown</td>
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<td>The Health Adventure, Inc., Asheville</td>
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<td>Museum of Life and Science, Durham</td>
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<td>SciWorks, The Science Center and Environmental Park of Forsyth County, Winston-Salem</td>
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<td>North Dakota</td>
<td>Gateway to Science, Bismarck</td>
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<td>Ohio</td>
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<td>Great Lakes Science Center, Cleveland</td>
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<td>Oklahoma</td>
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<td>Reading Public Museum, Reading</td>
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<td>Rhode Island</td>
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<td>South Carolina</td>
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<td>South Dakota Discovery Center &amp; Aquarium, Pierre</td>
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<td>Tennessee</td>
<td>Creative Discovery Museum, Chattanooga</td>
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<td>Texas</td>
<td>Children’s Museum of Houston, Houston</td>
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<td>Don Harrington Discovery Center, Amarillo</td>
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<td>Utah</td>
<td>Natural History Museum of Utah, Salt Lake City</td>
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<td>ECHO Lake Aquarium and Science Center, Burlington</td>
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<td>Wisconsin</td>
<td>EAA Airventure Museum, Oshkosh</td>
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<tr>
<td>Wyoming</td>
<td>The Science Zone, Casper</td>
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