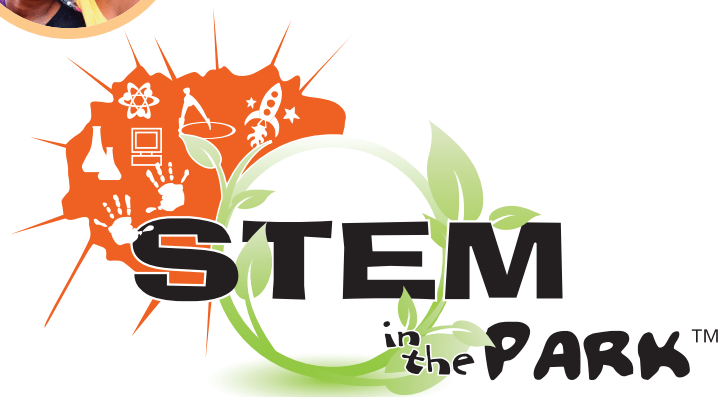


2013 ANNUAL REPORT



Science, Technology, Engineering, and Mathematics

Prepared by the Northwest Ohio Center
for Excellence in STEM Education



We wish to thank all of our sponsors for the 2013 STEM in the Park

Presented by



College of Arts and Sciences
College of Education and Human Development
College of Technology, Architecture and Applied Engineering
Department of Biological Sciences
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Office of Admissions
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School of Teaching and Learning



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What is STEM in the Park?

STEM in the Park is a free community event, coordinated by the Northwest Ohio Center for Excellence in STEM Education (NWO), created to get people of all ages excited about STEM (Science, Technology, Engineering, and Mathematics). The ultimate goals of STEM in the Park are to increase attendees' awareness of STEM-related organizations and events in their community, and to improve attendees' knowledge about and interest in STEM and STEM careers. STEM in the Park features dozens of interactive STEM activities facilitated by higher education institutions, pre-K-12 educational agencies, community non-profit organizations, and local businesses. People attending the event enjoy free food and can visit as many STEM activity stations as they desire. The event operates based on the generosity and talent of STEM professionals, businesses, and organizations in northwest Ohio, many of whom donate their time in the name of STEM education.

The significance of STEM in our lives is easy to see: a rapidly growing population and ever more complex systems of human interaction demands creativity and innovation to solve the important social, economic, health, and environmental problems we face everyday. STEM is an essential part of that problem-solving process, and is therefore more important than ever as we continue to face greater and more complex problems. STEM in the Park seeks to contribute to STEM education by providing opportunities for adults and children to explore the many aspects and applications of STEM in their lives.

The fourth annual STEM in the Park event was held at Bowling Green State University (BGSU) on Saturday September 7, 2013. The length of this year's event was again increased by a half an hour, resulting in a four-hour event that began at 10:00 AM and ended at 2:00 PM. The event was held again at the Perry Field House. The attendance was the largest to date, with a total of 3,287 attendees, exhibitors, and volunteers/staff (a 23% increase in attendance from 2012). This year's event also grew from 58 to 80 activity stations, with many new exhibitors and many stations facilitating multiple hands-on STEM activities. The 2013 STEM in the



2013 STEM in the Park™ by the Numbers

Total Participants: **3,287**

Expected 2014
Attendance: **3,500**

Lunches Served: **1,847**

Activity Stations: **80**

Take-Home Activities: **36**

Sponsors: **20**



Park event was presented by BGSU, BP, Lubrizol Foundation, and Verizon with support from BGSU Foundation, Cooper Tires, Kroger, Tony Packos, NWO, PNC Bank, Spectra Group Limited, Inc, and Walmart.

Who Comes to STEM in the Park?

A total of 3,287 people (including staff and exhibitors) attended STEM in the Park in 2013, which is 606 more (a 23% increase) than the previous year's attendance. The growth in attendance at STEM in the Park has been staggering since its inception in 2010. Attendance has increased by an average of 28% each year, and this year's attendance was more than double the attendance at the first event. The table below displays the attendance information for all four STEM in the Park events.

STEM in the Park Attendance from 2010 to 2013

STEM in the Park Participants	2010	2011	2012	2013
Adults	620	617	991	1,255
Total Children	785	759	1,279	1,626
Total Attendees	1,405	1,376	2,270	2,881
Volunteers/Staff	32	65	69	68
Exhibitors	177	270	342	338
Total Staff and Exhibitors	209	335	411	406
Total Attendance	1,614	1,711	2,681	3,287

“STEM in the Park was an extremely fun, hands on, educational experience for my children. All children would benefit from participating in this free, well organized and planned event.”

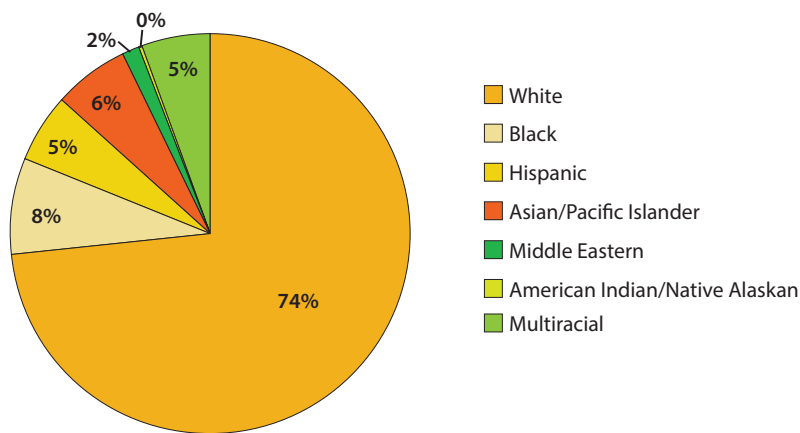




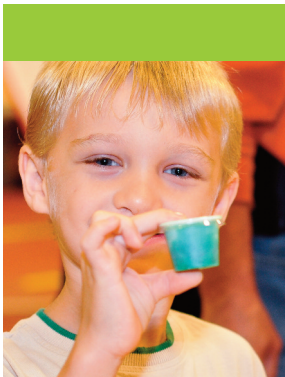
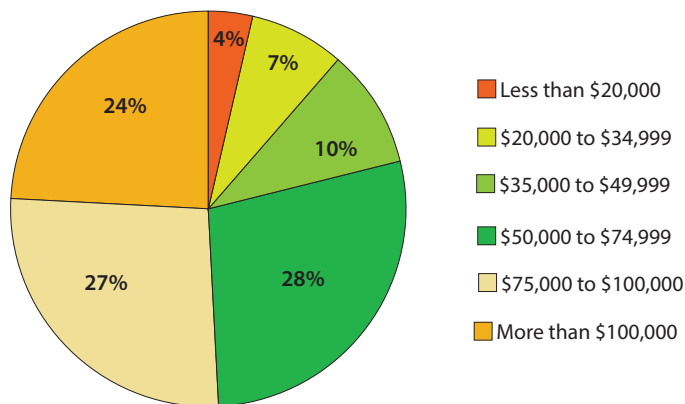
NWO continued its commitment to increasing attendance among low-income and at-risk children, providing transportation (the primary barrier) to and from the event for students of Toledo Public Schools and their families. The STEM in the Park staff is committed to further increasing diversity in the future. The demographic information collected from the registration and evaluation survey is presented in the figures below.



**Racial Identity of Children Attending STEM in the Park
(n=1,579)**



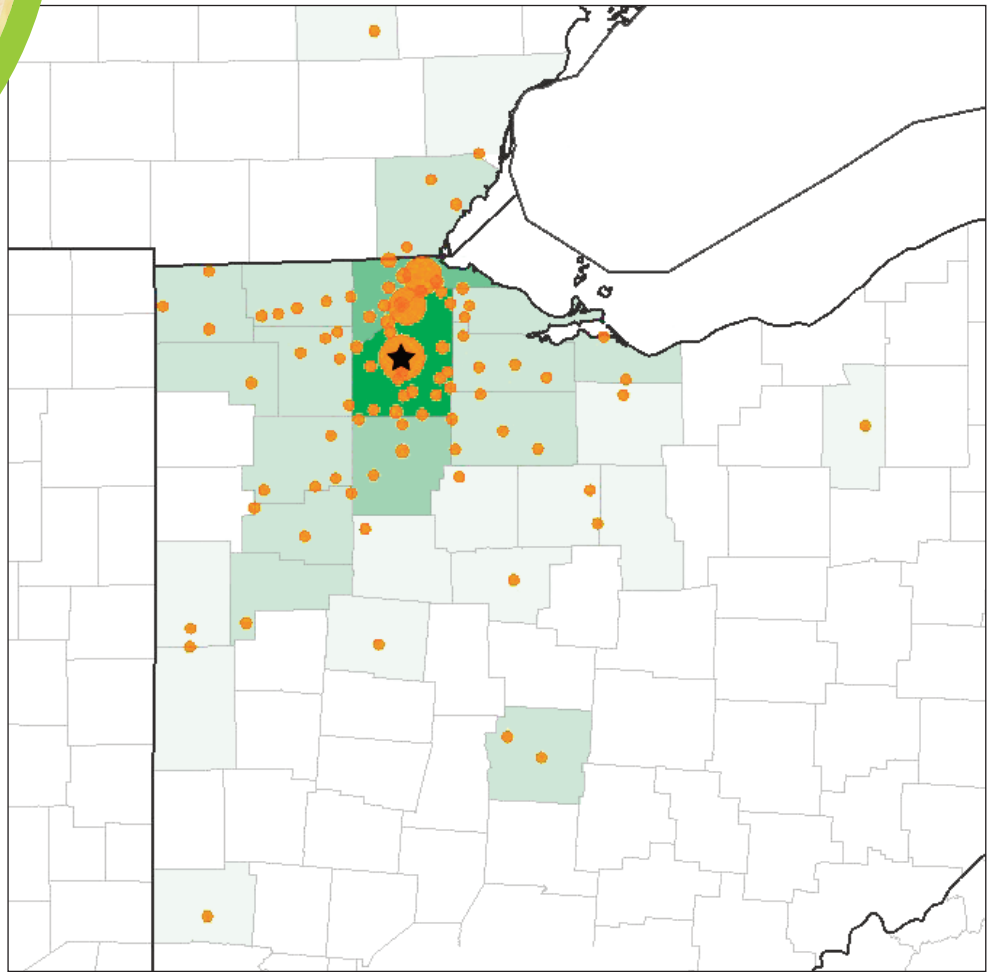
**Annual Household Income for Families Attending STEM in the Park
(n=315)**





Where Are The Families Coming From?

This year, STEM in the Park attracted families from at least 88 different cities and towns in Ohio and Michigan. Most attendees were from northwest Ohio, mainly Bowling Green, Toledo, and Perrysburg, but families also came from the Cleveland, Columbus and Cincinnati areas, as well as from several cities and towns in southeast Michigan. The map below illustrates the locations from which attendees traveled to STEM in the Park.



□ 5-10 □ 11-50 □ 51-100 □ 101-500 □ 501-1000 □ 1001-1500

★ STEM in the Park (Bowling Green, OH)

Note: The size of a circle corresponds to the number of attendees from a particular city/town



STEM in the Park™ Activity Highlight

What Do People Do at STEM in the Park?

This year, STEM in the Park featured 80 STEM activity stations that were facilitated by local exhibitors from private businesses, non-profit organizations, pre-K-12 institutions, and institutions of higher education. Most activity stations included hands-on activities and games, and provided attendees with opportunities to observe and interact with several kinds of artifacts, animals, animal coverings, earth materials, and technology. Many of the 80 activity stations included make-and-take activities that resulted in products attendees could take with them. Some of the make-and-take products included wind turbines, “flubber”, ice cream, butterfly larvae, a water bottle terrarium, solar ovens made from pizza boxes, and button flywheels. In addition, 36 activity stations provided attendees with take home activity cards, which could also be accessed online after the event (at <http://cosmos.bgsu.edu/STEMinPark/activitycards.htm>). The cards included directions and an explanation for an activity that would allow the attendees to extend their STEM discovery at home after the event. The figure on the following page illustrates the percentage of activity stations facilitated by each type of exhibitor, and lists the specific exhibitors who participated.

“This was a great community experience and is instilling learning for even the youngest children. I also thought it was a great family experience for everyone to enjoy together. What a neat idea and how wonderful that many organizations were able to partner together and share resources.”



Explore Snakes and Reptiles

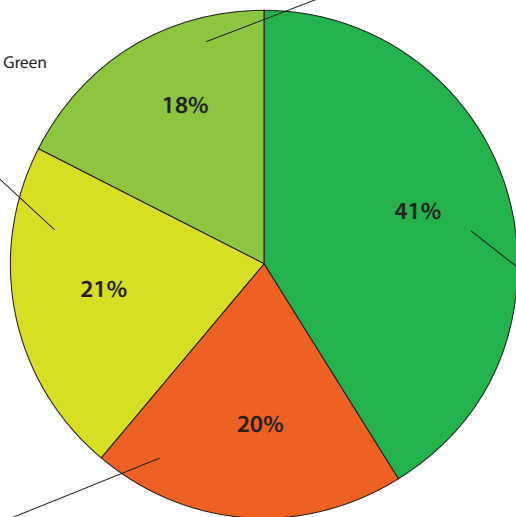
This activity station, facilitated by the BGSU Department of Biological Sciences Herpetology Lab, was the most frequently mentioned favorite activity among attendees who completed the evaluation survey. Attendees visiting this station had the opportunity to observe and interact with more than two-dozen different species of reptiles, under the guidance and supervision of several BGSU students who volunteer in the Herpetology Lab. Some of the reptiles at this station included crested geckos, bearded dragons, corn snakes, Kenyan sand boas, and a six and half foot long albino boa constrictor!



2013 STEM in the Park Exhibitors

Build It!
 Crazy Craig
 Davis-Besse Nuclear Power Station of First Energy
 E.S. Wagner Company
 Educaching by SDG Creations, Ltd
 ERG Environmental Services
 Lathrop Construction
 New York Life Insurance Company of Bowling Green
 PNC Bank – Grow Up Great
 PVS Nolwood
 Spectra Group Limited, Inc
 The Balloon Lady
 Tim Hortons in Bowling Green
 Usborne Books & More
 Verizon
 Wood County Hospital

Bowling Green City Fire Department
 Challenger Learning Center of Lake Erie West
 Imagination Station
 Maumee Valley Historical Society-Wolcott
 House Museum Complex
 Metroparks of the Toledo Area
 Sauder Village
 Science Education Council of Ohio (SECO) /
 National Science Teacher Association (NSTA)
 Seven Eagles Historical Education Center
 Toledo – Lucas County Rain Garden Initiative
 Toledo Area Humane Society
 Toledo Botanical Garden
 Toledo Zoo
 Wood County District Public Library
 Wood County Historical Center
 Wood County Park District
 Wood County Soil & Water Conservation District



- Higher Education Institutions
- Local Businesses
- Non-profit Organizations
- PreK-12 Education Institutions

Bowling Green Early Childhood Learning Center
 Educational Service Center of Lake Erie West
 Gateway Pre-K School
 Horizon Science Academy – Springfield
 Horizon Science Academy – Toledo
 Horizon Science Academy – Toledo Downtown
 Michigan Math and Science Academy
 Montessori Day School
 Montessori School of Bowling Green
 Ohio Virtual Academy
 Rainbow Co-Op Preschool
 St. Kateri Catholic Academy
 Toledo Technology Academy of Toledo Public Schools
 West Side Montessori

BGSU - Kids Tech University
 BGSU – Academic Investment in Math and Science (AIMS) Program
 BGSU – Center of Excellence for 21st Century Educator Preparation
 BGSU – Classroom Technology Program
 BGSU – College of Musical Arts – Electroacoustics
 BGSU – Department of Architecture and Environmental Design
 BGSU – Department of Aviation Studies
 BGSU – Department of Biological Sciences – Herpetarium
 BGSU – Department of Biological Sciences – Marine Lab
 BGSU – Department of Chemistry & Chemistry Club
 BGSU – Department of Construction Management
 BGSU – Department of Environment & Sustainability
 BGSU – Department of Geology
 BGSU – Department of Physics and Astronomy
 BGSU – Department of Visual Communication Technology
 BGSU – Electronics & Computer Technology Program
 BGSU – Engineering Technology Program
 BGSU – Falcon BEST Robotics
 BGSU – Office of Admissions
 BGSU – School of Teaching and Learning – Middle Childhood Program
 BGSU – School of Teaching and Learning – AYA Program
 BGSU – School of Teaching and Learning – Early Childhood Program
 BGSU – Science and Mathematics Education in ACTION Program
 BGSU – University Libraries – Curriculum Resource Center
 Bowling Green Council of Teachers of Mathematics
 Lourdes University
 NWOET at BGSU
 Ohio Northern University – Engineering Education
 Tau Beta Sigma – Alpha Xi at BGSU
 The University of Findlay – Biology Department
 UT – American Chemical Society
 UT – Building Ohio's Sustainable Energy Future (BOSEF)

“Wow! What a great opportunity and experience! We were like a kid in a candy store of fun knowledge!”



The favorite activities mentioned by the attendees on the evaluation survey were tallied, and the most commonly listed activity stations (those given by at least 10% of respondents) are displayed in the table below. The top three activities are also highlighted throughout the report in the “STEM in the Park Featured Activity” boxes.

“We love going to this event every year! It is an outing that all family members enjoy and benefit from.”

“What an excellent experience to stimulate my kids’ interest and awareness in STEM!”

STEM in the Park™ Activity Highlight



Create a Butterfly Larva Necklace

This activity station, facilitated by the BGSU School of Teaching and Learning Adolescent and Young Adult Program, was the second most frequently mentioned favorite activity among attendees who completed the evaluation survey. Children visiting this station built a caterpillar habitat in a small container, which they wore around their neck for the rest of the event. Children were given instructions for taking care of their caterpillar at home as it formed a chrysalis. Weeks after the event, hundreds of butterflies emerged from their chrysalises in hundreds of homes in northwest Ohio and southeast Michigan!

Attendees’ Favorite Activity Stations at STEM in the Park 2013

Activity Station (Provider)	# of Times Mentioned	% of Survey Respondents Who Mentioned the Activity
Explore Snakes and Reptiles (BGSU Dept. of Biological Sciences – Herpetology Lab)	80	24%
Create a Butterfly Larva Necklace (BGSU School of Teaching and Learning AYA Program)	64	19%
Ice Cream in a Bag (BGSU Dept. of Chemistry)	62	18%
Marine Touch Tanks (BGSU Dept. of Biological Sciences – Marine Lab)	44	13%
Fun with Flubber (Imagination Station)	36	11%
Starlab Planetarium (Educational Service Center of Lake Erie West)	34	10%



What Are People Saying About STEM in the Park?

Attendees' survey responses indicated the activity stations appealed to the preferences of many different people. Indeed, several attendees provided comments that demonstrated their satisfaction with the variety of activities at STEM in the Park. Three attendees wrote:

"This was my first time and I was amazed at how organized such a large event like this was. The activities were wonderful for a variety of ages."

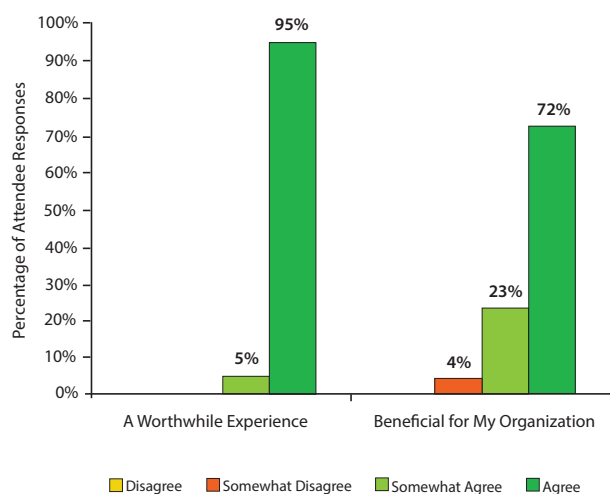
"We had a great time! I was so thrilled at the sheer number and variety of activities! My kids were engaged and learning the whole time!"

Most participants believed the STEM in the Park activities were highly engaging. Exhibitors saw first-hand how engaged children were at the event. Some of the **exhibitors** wrote:

"Many children were excited to see and touch fossils. Lots of "what's that?!" questions."

"Children were eager to touch and explore during the event."

Exhibitors' Perceptions Regarding the Value of their STEM in the Park Experience (n = 22)



Most exhibitors also said that STEM in the Park was a worthwhile experience, and reported that being an exhibitor was beneficial for their organization. Almost all exhibitors said it is very likely that they will return as exhibitors to STEM in the Park.

"What an amazing event. Far surpassed our expectations."





Most attendees said it is *very likely* that their family will attend STEM in the Park next year. Some **attendees** wrote:

“Great way for the kids to see the science in a concrete way that helps them remember it. Will definitely be attending again.”

“This was our first year and I am still blown away at how amazing it was!!! My son absolutely loved it!! We will definitely be back for more next year!!!”

“I can’t wait to take my kids again next year!”

Overall, the attendees’ comments were very positive. Many attendees wrote how impressive the event was, and expressed their gratitude for being able to attend a free community event with a free lunch. Many attendees also mentioned how helpful and friendly the exhibitors and volunteers were. Some of the attendees wrote:

“Thank you for making it a free family event. Its not very often that we as a family can go and do something with so much to offer, and not have to pay an arm and a leg to participate.”

“Awesome event! My kids had a great time and were engaged throughout! We can't believe it was a free event.”

“I really have enjoyed attending STEM in the Park. I think the energy of the presenters/volunteers is phenomenal. It is such a wonderful event for the community.”

“Everyone is so welcoming and helpful. Volunteers are always friendly and patient, getting everyone involved.”

“I was amazed by all the exhibitors and the enthusiasm and knowledge they shared with my children.”



“It was a wonderful experience. How refreshing to take your family to an event that is completely free and is fun and interesting for the entire family! We greatly appreciate all the hard work that was involved and feel it was a great experience that will help nurture a love of STEM in our children! Thank You!”

“We had a great time! I was so thrilled at the sheer number and variety of activities! My kids were engaged and learning the whole time!”



STEM in the Park™ Activity Highlight

This activity station, facilitated by the BGSU Department of Chemistry, was the third most frequently mentioned favorite activity among attendees who completed the evaluation survey. Attendees visiting this station created a tasty frozen treat using only milk, vanilla, sugar, salt, ice, and a whole lot of shakin'.

This activity has been a favorite since the first STEM in the Park in 2010, and will surely continue to satisfy children's curiosity AND their sweet tooth!

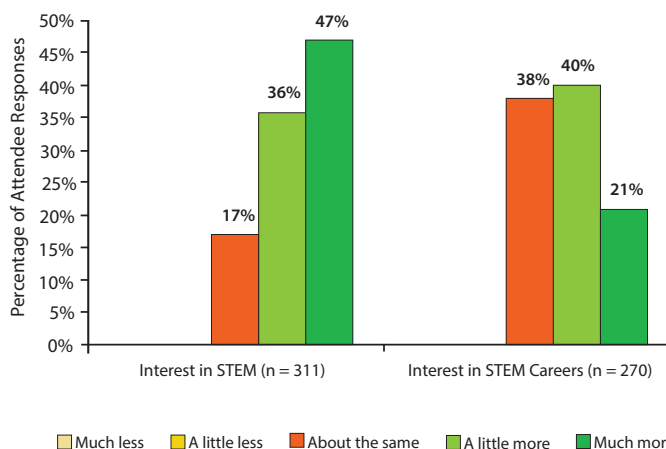
Ice Cream in a Bag



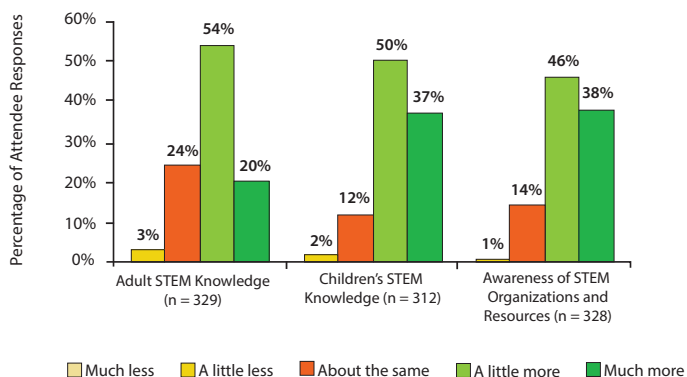
What is the Impact of STEM in the Park?

The findings from the 2013 STEM in the Park evaluation demonstrate that STEM in the Park successfully reached its goals of increasing attendees' awareness of STEM-related organizations and events in their community, and improving attendees' knowledge about and interest in STEM and STEM careers.

STEM in the Park Impact on Children's Interest in STEM and STEM Careers



STEM in the Park Impact on Attendees' STEM Knowledge and Awareness





How Do People Learn About STEM in the Park?

People learn about the event in several ways. NWO sent e-mails to past attendees, community STEM partners, university and college faculty members, and pre-K-12 teachers and administrators. Postcards and flyers were also distributed to local schools and community partners. The following table outlines the ways in which attendees learned about the 2013 STEM in the Park event. The other category represents sources such as Facebook, attendance at previous STEM in the Park events, Boy/Girl Scouts, and homeschool groups.



How Attendees Learned About the 2013 STEM in the Park Event

Source	Number of Attendees	Percentage of Attendees
School	298	38%
A friend or family member	180	23%
E-mail from NWO	170	22%
Flyer	133	17%
Other	120	15%
Postcard	91	11%
Online Community Calendar	23	3%

Note: n=789

What Are the Future Plans for STEM in the Park?

Participants provided some valuable feedback regarding aspects of the event that could be improved in the future. Based on these suggestions, the STEM in the Park staff plans to make the following changes:

- Increase the diversity of the STEM in the Park participants.
- Add new activity themes (e.g., the Science of Sports).
- Provide alternative lunch options.
- Group some activities by age (this is based on the success of the "Roots to STEM" PreK-2 area sponsored by PNC Bank).
- Continue to refine the registration process.
- Improve the visibility of the signage around the activity stations .





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