2013 ANNUAL REPORT

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

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STEM in the Park™ 2013 Annual Report
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 Park™ by the Numbers

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Participants</td>
<td>3,287</td>
</tr>
<tr>
<td>Expected 2014 Attendance</td>
<td>3,500</td>
</tr>
<tr>
<td>Lunches Served</td>
<td>1,847</td>
</tr>
<tr>
<td>Activity Stations</td>
<td>80</td>
</tr>
<tr>
<td>Take-Home Activities</td>
<td>36</td>
</tr>
<tr>
<td>Sponsors</td>
<td>20</td>
</tr>
</tbody>
</table>
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

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

“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)*

- White: 74%
- Black: 5%
- Hispanic: 6%
- Asian/Pacific Islander: 5%
- Middle Eastern: 0%
- American Indian/Native Alaskan: 2%
- Multiracial: 8%

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

- Less than $20,000: 27%
- $20,000 to $34,999: 24%
- $35,000 to $49,999: 7%
- $50,000 to $74,999: 10%
- $75,000 to $100,000: 4%
- More than $100,000: 7%
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.

★ STEM in the Park (Bowling Green, OH)

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

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.

“\textit{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!”

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

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!
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

**Ice Cream in a Bag**

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!

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**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**

<table>
<thead>
<tr>
<th>Interest in STEM (n = 311)</th>
<th>Interest in STEM Careers (n = 270)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17%</td>
<td>36%</td>
</tr>
<tr>
<td>47%</td>
<td>40%</td>
</tr>
<tr>
<td>38%</td>
<td>21%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Adult STEM Knowledge (n = 329)</th>
<th>Children’s STEM Knowledge (n = 312)</th>
<th>Awareness of STEM Organizations and Resources (n = 328)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>24%</td>
<td>20%</td>
<td>14%</td>
</tr>
<tr>
<td>54%</td>
<td>37%</td>
<td>46%</td>
</tr>
<tr>
<td>50%</td>
<td>38%</td>
<td>38%</td>
</tr>
</tbody>
</table>

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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

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

*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.
STEM in the Park Staff

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