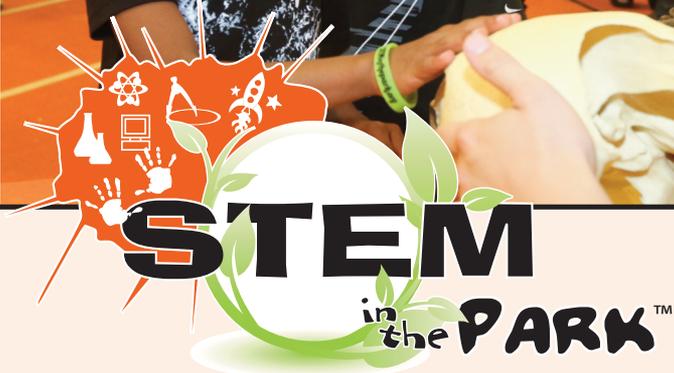




Prepared by the Northwest Ohio Center for Excellence in STEM Education



Science, Technology, Engineering, and Mathematics

ANNUAL REPORT 2017

2017 STEM IN THE PARK BY THE NUMBERS

TOTAL PARTICIPANTS:
5,600

HANDS-ON ACTIVITIES:
179

EVENT VOLUNTEERS:
1,105

SPONSORS:
(CORPORATE, BGSU, IN-KIND)
22

WHAT IS STEM IN THE PARK?

STEM in the Park was created to enrich participants in the STEM (science, technology, engineering, and mathematics) fields through hands-on, STEM-infused activities. STEM in the Park is coordinated and implemented by the Northwest Ohio Center for Excellence in STEM Education (NWO) at Bowling Green State University (BGSU). With a mission to advance STEM education for people of all ages, NWO annually presents this event free of charge to thousands of participants from Ohio and beyond.

The goals of STEM in the Park are to improve participants' knowledge and interest in the STEM disciplines and STEM careers as well as to increase awareness of STEM related organizations and events in our community. These goals are met by featuring many interactive STEM experiences facilitated by volunteers from higher education institutions, preK-12 educational agencies, community non-profit organizations, and local businesses, all who share the common goal of advancing STEM education.

STEM in the Park unites area families, teachers, university faculty and students, local businesses, and community

resource providers to engage in a free program of inquiry-based STEM activities and STEM career exploration through a local university experience, in hopes of inspiring a new generation to interact with the STEM disciplines. Additionally, STEM in the Park seeks to contribute to STEM education by providing opportunities for children and adults to explore the many aspects and application of STEM in their daily lives while infusing a love of inquiry based learning.

The eighth annual STEM in the Park event was held on the campus of Bowling Green State University on September 23, 2017. The attendance once again increased and was the largest to date with over 5,600 attendees/exhibitors/staff/volunteers participating, which is a significant increase from 2016. The number of activity stations also increased with many new exhibitors and stations facilitating multiple hands-on STEM activities, including the creation of two new activity stations: The All Wheels Zone, which featured The Right Direction, high energy exhibitions and activity stations exploring all

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"I loved the event! I plan on coming next year and bringing more people with me! I loved the variety of activities and lesson. The benefit was that it was open and "come and go" as you please. Having lunch there was perfect and everyone was SO helpful and friendly!"



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types of wheels, tires and gears, and The Robotics Zone, where participants were able to interact with organizations highlighting cutting edge technology dealing with the design, construction, operation, and application of robots.

One of the many strengths of this program is the spirit of community that evolves during its planning and implementation. The many volunteers and exhibitors that provide inquiry-based learning STEM activities to engage children and their families contributes to the remarkable success of STEM in the Park. As well, many exhibitors state that participation in STEM in the Park is a worthwhile experience and is beneficial for their organization. There are ample opportunities to volunteer at STEM in the Park, and NWO also relies heavily on the undergraduate/graduate students at BGSU, as well as community members and volunteers from corporations and businesses with the shared vision of advancing STEM education.

The 2017 STEM in the Park event was presented by BGSU, BP, First Solar, Lubrizol, PPG Industries, and Verizon with community support from Carolina Biological, Perrysburg Rotary Club, SSOE, Thayer, The Anderson's, and Toyota. General Sponsors included Biggby Coffee, Bostdorff's Greenhouse, Children's Discovery Center, Columbia Gas of Ohio, Costco, Glass City Federal Credit Union, Partners in Education, Tony Packo's, Walmart, and Whirlpool.



WHAT DO PEOPLE DO AT STEM IN THE PARK?

For the 2017 event, STEM in the Park featured 179 interactive STEM stations facilitated by exhibitors from local businesses, non-profit organizations, pre-K-12 community organizations, and institutions of higher education. All activity stations included hands-on STEM activities and games, and provided participants with opportunities to observe and interact with several kinds of artifacts, animals, animal coverings, earth materials, and different forms of technology. Many of the activity stations include make and take activities that resulted in materials that participants could take home, and included ice cream, butterfly larvae necklaces, personalized concrete stones, a baggie of slime, and many more. Many stations also provided take home STEM activities to extend learning at home. Activity cards can also be accessed online at www.bgsu.edu/nwo/programs/stem-in-the-park/activity-cards.html.

STEM IN THE PARK ACTIVITY HIGHLIGHT

Animal Explorers



“I loved seeing all the people helping kids get excited about math, science, and technology! It was great to see!

I must admit that the free food convinced me to check it out and I am so glad I did! I will be bringing my child back again!”



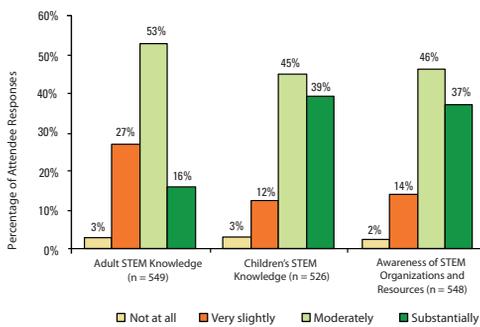
STEM IN THE PARK ACTIVITY HIGHLIGHT

Butterfly Necklaces

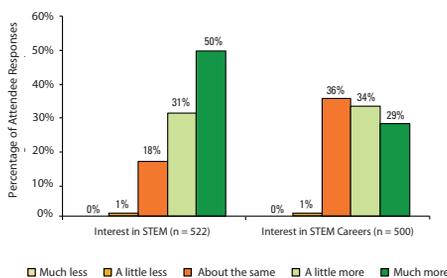
WHAT IS THE IMPACT OF STEM IN THE PARK?

The findings from the 2017 STEM in the Park evaluative survey demonstrate that STEM in the Park successfully reached its goals of increasing participants’ awareness of STEM related organizations and events in their community, and improving participants’ knowledge about and interest in STEM and STEM careers. See graphs below:

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



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



Long-time partners with STEM in the Park, *The Toledo Zoo* once again hosted several hands-on experiences for visitors at their activity station as well as super-sized demonstrations on the STEM Stage. Facilitated by the Zoo Curators of Animal Education, participants discovered the importance of animals from all over the world and were able to meet and touch live animals, explore preserved pieces, and play games that assisted in showing how animals can be important in their habitat.

SOCIAL CAUSES

In 2015, NWO began a partnership with Food For Thought (FFT), a local non-profit organization that collects food and household items and distributes them to families in need in northwest Ohio. Event participants were encouraged to bring food and household items to donate to the mobile pantry which FFT brings to the event. STEM in the Park staff will continue to connect the event to a social cause, and is grateful for the opportunity to do so.

Food For Thought increased their participation in 2016 and 2017 by hosting several activity stations in the Food Science Zone in addition to bringing the Mobile Food Pantry. With a mission to educate the community on food insecurity along with nutritious meal preparation they provided hands-on approaches to Urban Gardening, Reducing Waste in Food Consumption and Composting Examples. Visitors were also able to assemble balanced meal food boxes that were then distributed to identified families in need in the community.



“I liked that there was something for every age group. My son is 6 and has sensory process issues. I was afraid to take him because large crowds are usually a problem. There were several tables/ areas that he was able to go to (example, shaving cream table) and get grounded when he felt a little overwhelmed. It allowed us to stay the entire day!”



This activity station, facilitated by the *BGSU School of Teaching and Learning Adolescent and Young Adult Program*, continues to be a top favorite activity among attendees who complete 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 and released in the environment in northwest Ohio and southeast Michigan!

“It offered everything imaginable. There was never a dull or boring moment. It was outstanding to have all of this offered for free.”

WHAT ARE PEOPLE SAYING ABOUT STEM IN THE PARK?

The results of an evaluative survey of participants indicated most participants believed STEM in the Park activities were highly engaging and positively impactful on children’s interest in STEM.

“We went two years and were amazed at how much it had grown and how much more interactive it is. The fact that you feed everyone lunch is an incredible feature. I love that it shatters financial barriers and welcomes diversity. This is one of the best events out there. I would love to bring something like this to my area. I drive 2.5 hours + to get there.”

In addition, our exhibitors gave STEM in the Park high remarks within the survey and saw first-hand how engaged participants were in activities.

“We love this event! STEM in the Park is a great opportunity for families to experience a small sampling of what our organization has to offer. We are able to answer questions, share our knowledge and make a fun, real-life science connection for kids and adults. It is also a great place for us to make connections with other local organizations, which helps us be a stronger asset to the community.”

“I value the interaction and the sharing of knowledge with the community on STEM.”

“It was wonderful to engage with children and parents about the role science plays in the food we eat. It was very beneficial!”

“Being an exhibitor was a worthwhile experience because we made contacts with people and individuals interested in the same topic; we were able to expand our perception of the application of STEM to the real world; the students gained tremendous experience in meeting and interacting with the public and in public speaking; and we all had a wonderful time. The girls loved interacting with the kids.”

“We love coming to STEM in the Park every year! Can't beat an educational, free event that you also get to leave with goodies and children fed! I thought this year the stations were laid out much nicer and the flow of traffic was better. Some years the space seems to small but this year felt like it had a better flow. I have nothing but positive things to say about this event. Thanks BGSU for hosting something so fun and educational in our community!”



STEM IN THE PARK ACTIVITY HIGHLIGHT

Ice Cream Chemistry

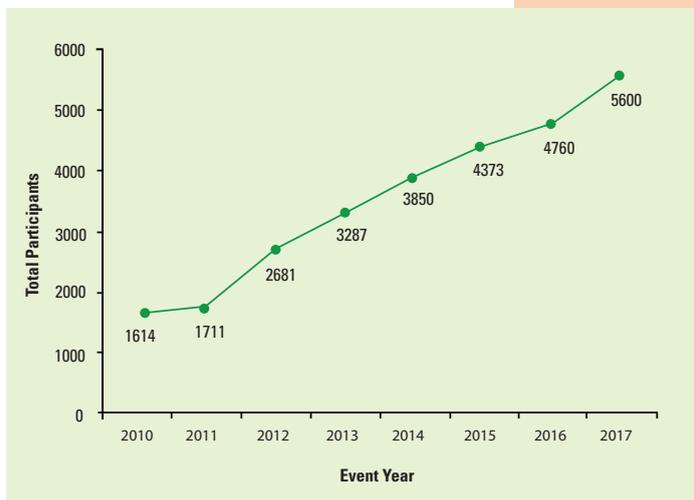
Shake, shake, shake! Participants at this activity station facilitated by the *BGSU's Chemistry Club, ACS-SA*, made their own ice cream by mixing ingredients (milk, vanilla, sugar, crushed ice, salt) in several plastic zipper baggies then shaking it to mix everything together for a few minutes until the end result, ICE CREAM! Why doesn't it take very long? That's due to the key ingredient, SALT! Thanks to chemistry, we now know that salt doesn't actually melt the ice but creates a chemical reaction inside ice and lowers the freezing point which speeds up the process to make ice cream.

“I think it is very well organized. It services so many people yet it flows quite well, allows people to explore at their own pace and choose according to their preference. The food was available quickly and was very good. All of the hands-on opportunities were amazing. Including the BMX bikes entertainment”



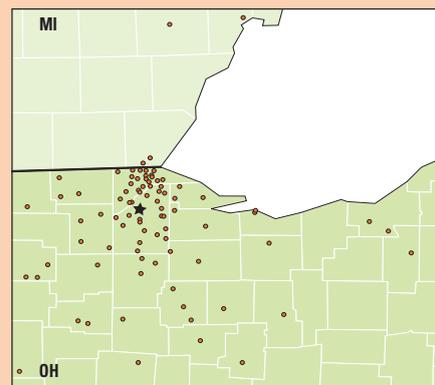
WHO COMES TO STEM IN THE PARK?

Over 5,600 people including volunteers and exhibitors attended STEM in the Park in 2017, which is an increase from the previous year. Overall, the growth in attendance has been remarkable since the event's first year in 2010.



WHERE ARE THE FAMILIES COMING FROM?

Participants and families came from 119 different cities and towns. Most participants were from northwest Ohio and the nearby towns of Bowling Green, Toledo, and Perrysburg. Some participants also came from the Cleveland, Columbus, and Cincinnati areas as well as from several cities and towns in southeast Michigan. The map illustrates the locations from which participants traveled to STEM in the Park.



Part of the NWO mission is to stimulate the interest of underrepresented students to the rewarding fields of STEM. For the last four years, we have

provided transportation to the event for students and in some cases their families wherein transportation is the main barrier of attendance. In 2017, students/families were transported to the event from several schools in the Toledo Public, Sandusky City, Otsego, and Lima City school districts, as well as the Adelante Latino Community Center in Toledo, OH.

The staff of STEM in the Park will remain committed to reaching even further in our region to continue to provide this opportunity in the future.



STEM IN THE PARK ACTIVITY HIGHLIGHT

Slime Monsters

Presenting Sponsor and Activity Station Provider, *BP* hosted the most popular and messiest station, *Slime Monsters!* Visitors to this station made their own fluffy slime monster out of glue, shaving cream, and contact lens solution and used food coloring to create the exact color of slime they wanted. During this process, participants learned about polymers and non-Newtonian fluids – which are fluids that ignore Sir Isaac Newton’s Law of Viscosity. Participants were able to take their Slime Monster home in a plastic baggie to continue to enjoy.



STEM IN THE PARK ACTIVITY HIGHLIGHT

Slip 'N Slide Races

On Your Mark...Get Set...SLIDE! The athletes of BGSU's Swim and Dive Team engaged participants in high energy Slip 'N Slide Races outside on the lawn in the H2O Zone. This activity station featured a new Timing Technology that the athletes use to increase the intensity of their competition training and performance. Visitors enjoyed seeing how the technology worked first hand through the races.

ATTENDEES' TOP 11 FAVORITE ACTIVITY STATIONS AT STEM IN THE PARK 2017

- **Slime Monsters** (BP)
- **Animal Explorers** (The Toledo Zoo)
- **Butterfly Necklaces** (BGSU Adolescent/Young Adult Science)
- **Reptiles are Cool** (BGSU Herpetarium, Biological Sciences Department)
- **Giant Bubble Foam Pit** (BGSU Inclusive Early Childhood Science)
- **Slip 'N Slide Races** (BGSU Swimming and Diving)
- **Button Fly Wheels** (Imagination Station)
- **Internet of Things** (Verizon)
- **Big Digger** (E.S. Wagner)
- **Ice Cream Chemistry** (Chemistry Club, ACS-SA)
- **Concrete & Pulleys** (BGSU Department of Construction Management)

Activity station descriptions are highlighted throughout the report.



WE WISH TO THANK THE FOLLOWING FOR THEIR SUPPORT OF THE 2017 STEM IN THE PARK!

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