



Northwest Ohio Center for Excellence in STEM Education



ANNUAL REPORT

2023

Fiscal Year 2023
(July 1, 2023 - June 30, 2024)

BGSU | College of Education and Human Development
BOWLING GREEN STATE UNIVERSITY

www.bgsu.edu/nwo



Connections



Communication



Collaboration

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Mission

The Northwest Ohio Center for Excellence in STEM Education (NWO) at Bowling Green State University's College of Education and Human Development has been serving the STEM (science, technology, engineering and mathematics) education needs of northwest Ohio since 2002. With a mission to advance STEM education for people of all ages, NWO is a partnership among area universities and colleges, pre-K-12 schools, educational service centers, and local businesses that share our mission.

As part of a public university for the public good, NWO works with community partners to: a) generate new knowledge about the science of learning, b) apply this knowledge by developing the expertise of K-12 educators and higher education faculty, c) increase public support for and understanding of STEM subject areas, and d) stimulate the interest of young people, especially those in underrepresented groups, in the rewarding fields of STEM study and career opportunities.

NWO strives to provide enriching STEM experiences for all learners with a focus on hands-on and minds-on learning, through the following initiatives:

- Educator Professional Development: Training and enrichment activities for current and future STEM educators
- School & Community Outreach: Engaging learners of all ages in STEM experiences and educational events and programs
- Grant Projects: Research and training grants focused on new and innovative STEM instructional practices
- Undergraduate STEM Research and Scholarship: Supporting the next generation of STEM and STEM education professionals

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INTRODUCTION

NWO strives to provide enriching STEM experiences for all learners with a focus on hands-on and minds-on learning, and since 2002, has implemented educator professional development, STEM education initiatives/grant projects, and community events that are designed to stimulate and engage participants of all ages in STEM fields. Thus, addressing the local as well as the broader regional need is to provide industry with a skilled workforce by enhancing STEM based and inquiry learning in the region.

NWO is one of the seven designated STEM education hubs of the Ohio STEM Learning Network (OSLN) of Battelle, which aims to champion and advance STEM initiatives and education throughout the region and state of Ohio and serves as the contact for the 29 counties of northwest Ohio. OSLN is a public-private partnership between Battelle and the Ohio Department of Education and Workforce, delivering high quality professional development, activities, and educational support to inspire the next generation of Ohio innovators. NWO assists schools in the region with Ohio Department of Education and Workforce STEM School designation through technical assistance and feedback and promotes OSLN grants, opportunities and events.



NWO EVENTS 2023-24

BioBlitz

NWO began the 2023-24 academic year with the third annual BioBlitz event, a unique educational program designed to engage students and their teachers to learn about native prairie habitats. The goals for the event are to engage students in exploration and investigation in nature in order to learn about both living and nonliving components of the local prairie ecosystem and what they and their families can proactively do to maintain its health. Both students and teachers learned how to observe nature and become active citizen scientists, while helping to preserve local natural habitats. One BioBlitz was held in Bowling Green at Wintergarden Park for over 50 elementary students from the Bowling Green City Schools district and an additional BioBlitz was held at the Toledo Zoo for students from Washington Local Schools, a frequent community partner. See Appendix A the report and examples of recognition.

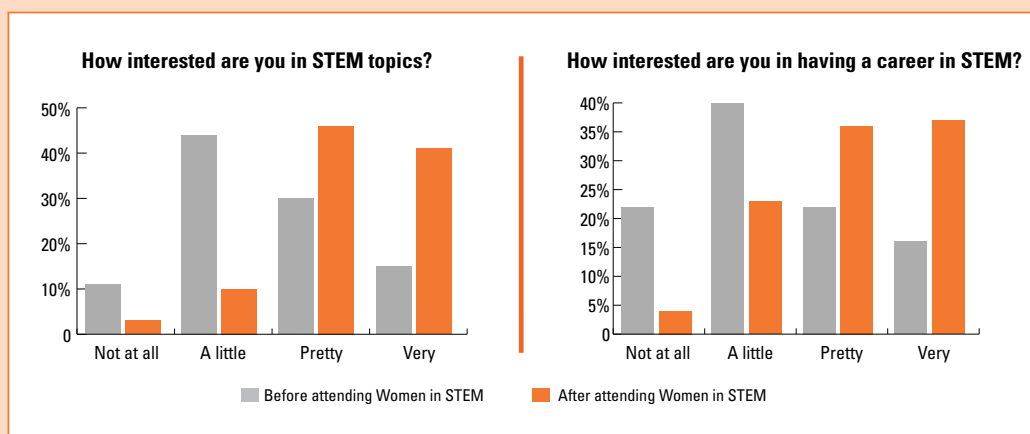
Women in STEM

The purpose of the annual “Women in STEM” program at BGSU is to provide engaging and enriching STEM activities for 6th, 7th and 8th grade students in an effort to promote future study and exposure to career options in STEM fields. Through this event, NWO strives to engage participants from the region of northwest Ohio in their own success, leading to interest in STEM related fields and occupations. This program’s aim is to help this age group recognize the wide array of options available in STEM fields, inspiring them to take classes in STEM fields throughout their educational careers. NWO has implemented the Women in STEM program since 2014 and will continue to do so as the evaluations of this program purport to its success. In addition to the support from the University and the College of Education and Human Development, this program is sustained through continual pursuit of sponsorships and funding from foundations and businesses that share in NWO’s vision of increasing the number of females in STEM related fields of study and careers. Numerous BGSU faculty from STEM fields volunteer and present engaging, hands-on STEM activities during the event, while BGSU undergraduates also volunteer as tour guides and show students BGSU scientific labs and campus.



NWO held the 40th annual Women in STEM event in November 2023, with 341 6-8th grade students and their teachers from 16 schools in northwest Ohio in attendance. The students participated in 28 unique presentations from the strands of: Life Science, Earth Science, Technology, Engineering, Physical/Chemical Science, Mathematics and Space Science. See Appendix B for report and examples of advertising, and Recognition.

STUDENT RESPONSES



STUDENT COMMENTS

"I loved learning about forensic science and math. All the activities were enjoyable."

"I loved my experience. I had fun in every class, and now I think I want a job in STEM."

“

Throughout my time visiting BGSU and participating in Women in STEM, I enjoyed it. The topics we explored were amazing! I loved my time here and it has increased my interest and appreciation for STEM. I hope I'll be able to come back next year!

“

GREAT exposure! The activities were fun and interesting. The girls were learning, but not in that traditional classroom setting. I saw a lot of smiling, laughing, and fun.

TEACHER COMMENTS

"I really liked how all the presenters stressed that girls follow their passion. Even though many fields are mostly male dominated in STEM."

"Its excellent exposure to different fields within STEM. Seeing other girls from across the area is also important - helps them to see the significance of the event. Also great exposure to college campus."

PRESENTERS' PERSPECTIVE

Over Half of the presenters indicated that this was their first or second year participating in **Women in STEM**, indicating that staff recruitment efforts to include new presenters appears to be successful.

"I believe that for the Women in STEM program, not only are the students learning new things, they are inspired to see new possibilities for their own lives and future careers. It's an awesome and valuable program. We will have more female students join STEM fields because of this program and others like it. Thank you!"

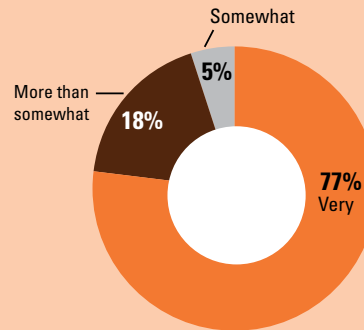
"I think that event is great for girls to meet other women who are actively working in STEM or near STEM careers."

“

I think it is phenomenal. It is very important to try to hook girls during middle school/junior high to get them interested in STEM Careers.

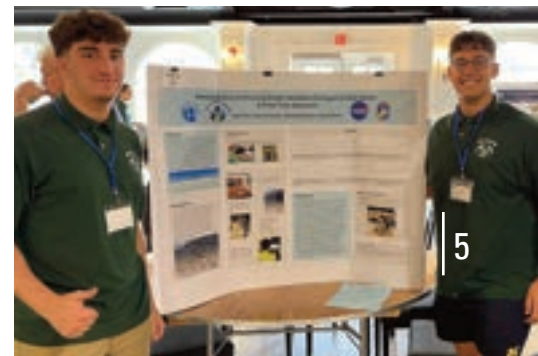
"I believe that this event helped to open a lot of girls' eyes to the world of STEM in ways that they may not have thought about before. The event showcased many entryways to the field of STEM for young girls. I believe that this will have a huge impact on how the girls think about STEM from here on out... it is more than just being a scientist in a lab."

As a presenter at Women in STEM, how worthwhile was your participation?



GLOBE Student Research Symposium

NWO held the third annual GLOBE Student Research Symposium with an expansion into the Midwest states in the spring of 2024, with over 65 enthusiastic students from the Midwest region and over 350 local students presenting their original scientific research from their school's prairie outdoor classrooms to faculty and peers. The symposium offered the chance for students to discuss research projects with STEM professionals, share ideas and learn from peers, and explore STEM careers. These symposia are held every spring in each of GLOBE's six U.S. regions. The





Over
350
Students from local
Northwest Ohio Schools

- Bowling Green Middle School
- Chase STEMM Academy
- Coy Elementary
- Defiance Elementary School
- Hull Prairie Intermediate School
- Kenwood Elementary School
- Marshall STEMM Academy
- McGregor Elementary
- Natural Science Technology Center
- St. Patrick of Heatherdowns
- Toledo Technology Academy of Engineering

Global Learning and Observations to Benefit the Environment (GLOBE) Program is an international science and education program that provides students and the public worldwide with the opportunity to participate in data collection and the scientific process and contribute meaningfully to our understanding of the Earth system and global environment. See Appendix C for report, programs, and recognition.



NWO STEM Inquiry Series

Back by popular demand, NWO implemented the STEM Inquiry Series, a series of STEM professional development workshops to engage educators in quality STEM education to learn skills and concepts in STEM teaching and learning to bring to their classrooms. The STEM Inquiry Series offered free registration and was open to in-service and pre-service teachers, higher education faculty, and business/community partners in the region, and featured four 3-hour long inquiry-based presentations from some of the leading names in STEM education research and professional development during the Spring of 2024. Session topics included concepts from the Ohio Department of Education Workforce STEM School Quality Model: Scaffolding STEM Culture, Introduction to Computer Science for K-8, and Personalized Learning. See Appendix D for report and examples of advertising.

1

Personalized Learning Framework

Learn about the Personalized Learning Framework as it relates to STEM education and the STEM Quality Model.

February 15, 2024

Facilitator: Heather Townley, Educational Service Center of Lake Erie West

2

Scaffolding STEM Culture through Design Thinking, Invention, and Entrepreneurial Spirit

Engage in experiences that enhance building the STEM/STEAM culture in your school. Participants will explore a framework of activities focused on scaffolding design thinking and invention.

March 12, 2024

Facilitator: Jason Hubbard, Dept. of Teaching & Learning, Perrysburg Schools

3

From Barriers to Belonging: Fostering Equity and Excellence with Design Thinking

(Unfortunately this session had to be cancelled due to the facilitator being ill)

This interactive session will feature hands-on Design Challenge experiences to create an environment where every student feels valued, respected, and capable of success in STEM.

April 18, 2024

Facilitator: Paige Espiritu, Assistant Technology Director, Ottawa Hills Local School District

4

Introduction to Computer Science for K-8

Teaching computer science in early grades develops critical computational thinking skills in young learners. This professional development session will focus on methods to integrate computer science standards into core subjects and cultivating early computational skills in K-8 students.

May 15, 2024

Facilitator: Christine Danhoff, Technology Integration Specialist, North Point Educational Service Center

NWO STEM Collaborative

NWO co-facilitated the third annual Northwest Ohio STEM Collaborative in partnership with the ESC of Lake Erie West and featured three STEM professional learning sessions hosted at different locations around northwest Ohio. Session titles included The Learning Blade, STEM Culture through a STEM Lab, and the Ottawa Hills new STEM Lab tour.



October 11, 2023	December 5, 2023	February 6, 2024
Hosted by the Learning Blade at the ESC of Lake Erie West	Hosted by Hull Prairie Intermediate STEM School in Perrysburg	Hosted by Ottawa Hills Jr. & Sr. High STEM Program

See Appendix E for report and examples of advertising.



NWO GRANT PROJECTS



Project EDUCATE

In August 2021, NWO was awarded an Ohio Deans Compact award in response to the critical demand for teachers of diversity. In June of 2023 the grant project team learned that this grant funding was renewed for 2023-25. Project EDUCATE (Educators of Diversity: Unified and Collaborative to Aspire Teacher Education) was continued this past academic year with a mission to increase teachers of color in the northwest Ohio region with a dedicated and ongoing partnership and “grow your own program” with Washington Local Schools District (WLS) in Toledo, Ohio. WLS students were brought to the BGSU campus on several occasions and were exposed to STEM education teaching and learning, participated in “Women in STEM”, and visited scientific research laboratories as well as the BGSU planetarium.

Project EDUCATE Components

BGSU Life Design

As BGSU is a university grounded in design thinking principles, Life Design is a groundbreaking program that allows students to design their own educational and life experiences utilizing the design process as their approach, alongside a life design coach.

Greg Dickerson, BGSU Life Design Coach, worked together with a WLS school district partner teacher on the development and facilitation of a Life Design course at the high school level. These comprehensive weekly Life Design Sessions were designed to inspire 9th and 10th graders to consider Teaching/Education a potential career path. The sessions integrated Life Design mindsets and design thinking principles to give students a holistic understanding of the teaching profession and its alignment with their personal and professional goals, equipping students with skills, education, and mindsets to persevere through life, while also guiding students to pathways to careers in education.

Campus Experiences

Campus Experiences offered students valuable exposure to and engagement with not only the BGSU campus but BGSU undergraduate and graduate students in Education. These visits have included campus tours of academic buildings and laboratories, sessions in BGSU's Virtual Simulation laboratory, and panels with BGSU graduate students with the opportunity to ask questions and engage with the graduate students in education. Students also visited the Radbill Center for College and Life Design, which features inclusive and collaborative spaces for students to work with Life Design coaches as they design their college experience and gain tools and skills to design their life.

Educators of Color Panel at BGSU

Project EDUCATE held the third Educators of Color Panel at BGSU, with four of the six panelists from Washington Local Schools. This panel continues to offer direct insight into the classroom of an educator of color and affords attendees a valuable awareness to and perception of today's classroom. Over 200 students and faculty attended the panel and is described in more detail in the Educators of Color panel annual report in Appendix F.

Ohio and National Teacher of the Year Kurt Russell

WLS Project EDUCATE participants as well as BGSU students and faculty heard presentations from Kurt Russell, the 2022 Ohio and National Teacher of the Year from Oberlin, Ohio, who NWO invited to visit the WLS school district to deliver a presentation entitled, "Crafting Tomorrow: The Impactful Role of Teachers on Shaping the Future". Mr. Russell shared his journey of becoming an educator of color, highlighting the opportunities and challenges he experienced, along with the impact and joys of teaching. Over 400 students attended along with Project EDUCATE teachers and mentors. He also participated in the Project EDUCATE afterschool club in a small-group setting, where students were encouraged to speak with him about his journey. Mr. Russell also delivered the presentation, "The Call to Teach-Embracing the Journey" at BGSU, speaking to over 200 students, faculty and staff on his dedication to empowering students, promoting diversity, and fostering critical thinking as an educator. See Appendix F for reports, examples of advertising, and recognition.





GP-EXTRA: (Geoscience through Education Research)

NWO continued its partnership with BGSU's Geology Department to offer a second year of GP-EXTRA - a free place-based science opportunity for grades 6-12 students and their teachers. The project engages students in authentic research and directly involves northwest Ohio area junior high and high school students in determining heavy metals content of soils (lead contamination) they and their families may come into contact within their daily lives and informs them how to minimize their exposure.

100% of the teachers NWO worked with last year reported their student's problem-solving skills and critical-thinking skills increased because of this program, and students reported an increase in knowledge, interest, and attitudes towards science. In addition, 100% of teachers surveyed at the end of last year would recommend GP-EXTRA to others.

For the 2023-24 academic year, GP-EXTRA reached ten schools and over 900 students. Students participated in three authentic sessions to learn about lead-based hazards, collect soil samples, analyze samples and apply knowledge to real-world scenarios and increase their awareness of scientific fields and careers. This project educates students to help make their community a safer place. See Appendix G for examples of advertising.



SCHOOL DISTRICT PARTNERSHIP

Washington Local Schools STEM Curriculum

NWO maintains an ongoing partnership with the Washington Local Schools STEM/Curriculum Department, assisting with professional development and programming while providing close consultancy on science and math curriculum. NWO and BGSU Faculty facilitated professional learning sessions such as Lesson Study with all 5th grade Math and Science teachers. Also, NWO provided out of the classroom learning experiences for students which included the BioBlitz, Project PRAIRIE at the Toledo Zoo, Imagination Station visits, Science Camp, and visits to the BGSU campus life and marine and planetary science laboratories. The project expanded to seventh grade advanced science students this academic year. NWO worked with the Advanced Science Educator at Jefferson Junior High and BGSU College of Arts and Sciences faculty to customize four campus visits with specific interactive sessions which challenged students in rigorous inquiry lessons and in-depth knowledge of their grade level standards and classroom studies. Students enjoyed dining on campus, interacting with current BGSU students and getting a sense of college life. See Appendix H for examples of campus experience agendas.

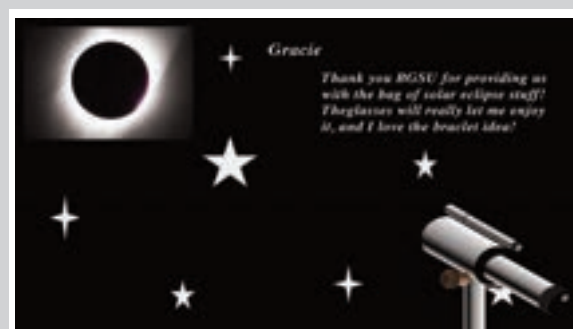


UNIVERSITY PARTNERSHIPS



Total Solar Eclipse

Leading up to this once-in-a-lifetime event in April 2024, NWO was involved in some of the pre-planning for the campus event with partners, Dr. Kate Dellenbusch and Dr. Andrew Layden from BGSU's Physics and Astronomy Department. NWO helped coordinate several professional learning opportunities for educators as well as hands-on materials for students. The NWO team also enhanced the Solar Eclipse content by assembling and delivering approximately 1,200 "Solar Eclipse 2 Go" activity bags to all 5th and 8th grade students at Washington Local Schools, teachers, and staff to take home and do with their families during the Solar Eclipse. NWO received many thank you notes from the students. See Appendix I for report.



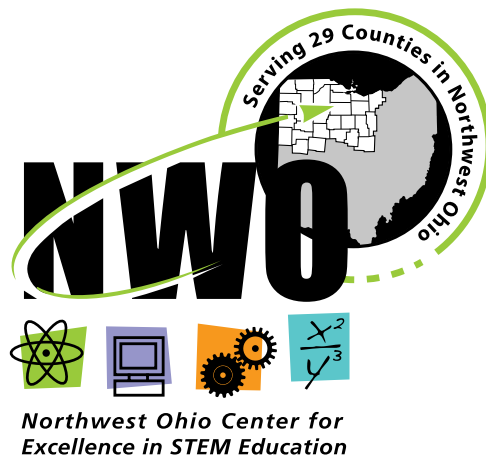


NWO COSMOS Team Collaborative

The goal of this supportive group is to collaborate with fellow BGSU faculty, administration, and staff to champion STEM initiatives (research and educational) to better serve the BGSU community, increase the public good, and advance STEM Education for all ages. The team held four meetings over the academic year with discussions and sharing of research interests, STEM initiatives, and effective educational methods, along with strategizing ways to collaborate among departments to increase the rigor of BGSU grant submissions, classrooms, and conversations. See Appendix J for examples of advertising.

e-Newsletter

NWO publishes a monthly e-Newsletter encompassing several sections in each issue, consisting of, 'What's happening at NWO?', 'K-16 STEM in the NEWS', 'Community STEM in the NEWS', 'STEM Opportunities', and 'NWO STEM Activity'. Subscribers are encouraged to share their story and send NWO their updates, press releases, and news of STEM happenings at their school, district, or organization to be featured in future e-newsletters. The e-News is distributed via our Constant Contact platform to several thousand educators across the state. NWO also archives e-Newsletters from the past at: <https://www.bgsu.edu/nwo/e-newsletters.html>. See Appendix K for a sample of the e-Newsletter.



APPENDICES

A: BioBlitz Report & Recognition

B: Women in STEM Report, Advertising, & Recognition

C: GLOBE Student Research Symposium Report, Programs, & Recognition

D: NWO STEM Inquiry Series Report & Advertising

E: NWO STEM Collaborative Report & Advertising

F: Project EDUCATE Reports, Advertising, & Recognition

G: GP-EXTRA: (Geoscience through Education Research) Advertising

H: Washington Local Schools STEM Curriculum Campus Experience Agendas

I: Total Solar Eclipse Report

J: NWO COSMOS Team Collaborative Advertising

K: e-Newsletters Sample



APPENDIX A: BIOBLITZ REPORT & RECOGNITION

BioBlitz Report



Appendix A: BioBlitz Report & Recognition cont.

BioBlitz Report




The Northwest Ohio Center of Excellence in STEM Education at Bowling Green State University's College of Education and Human Development, in partnership with the Toledo Zoo and Xcite Learning, held the third annual "BioBlitz BG" event on natural habitat prairies for local fourth and fifth graders from Bowling Green City schools and seventh graders from Washington Local School district






Below is a recap of our BioBlitz BG activities held this year. Please discuss and reflect on this information so that we can further deepen all learning. Our goals for the event were simple: **ENGAGE•LEARN•ACT!** It is our goal to engage students in exploration and investigation in nature in order to learn about both living and nonliving components of the local prairie ecosystem and what they and their families can proactively do to maintain its health. Finally, we wanted to inspire students to take action to help protect and preserve both local prairies and planet Earth.

Please send student and teacher feedback, both positive and growth feedback to: nwo@bgsu.edu, with the subject line of BioBlitz BG Feedback. With your help, we can make this event even better in the years to come.

We'd like to thank the **BGSU College of Education and Human Development** as well as our local community sponsor **Lubrizol**, along with support from the **Bowling Green City Parks**, the **Toledo Zoo & Aquarium**, and **Xcite Learning** who made this event possible. We are very grateful for continued partnership and collaboration with our STEM Education community!

Dr. Jodi Haney, Professor Emerita, BGSU & Xcite Learning
Mitch Magdich, Curator of Education, The Toledo Zoo & Aquarium
Alex Burris, School and Community Programs Coordinator, The Toledo Zoo & Aquarium
Dr. Emilio Duran, Professor and Director, Northwest Ohio Center for Excellence in STEM Education, BGSU College of Education and Human Development
Susan Stearns, Assistant Director, Northwest Ohio Center for Excellence in STEM Education, BGSU College of Education and Human Development
Jenna Pollock, Education Program Manager, Northwest Ohio Center for Excellence in STEM Education, BGSU College of Education and Human Development
Lisa Addis, Creative Manager, Northwest Ohio Center for Excellence in STEM Education, BGSU College of Education and Human Development





Appendix A: BioBlitz Report & Recognition cont.

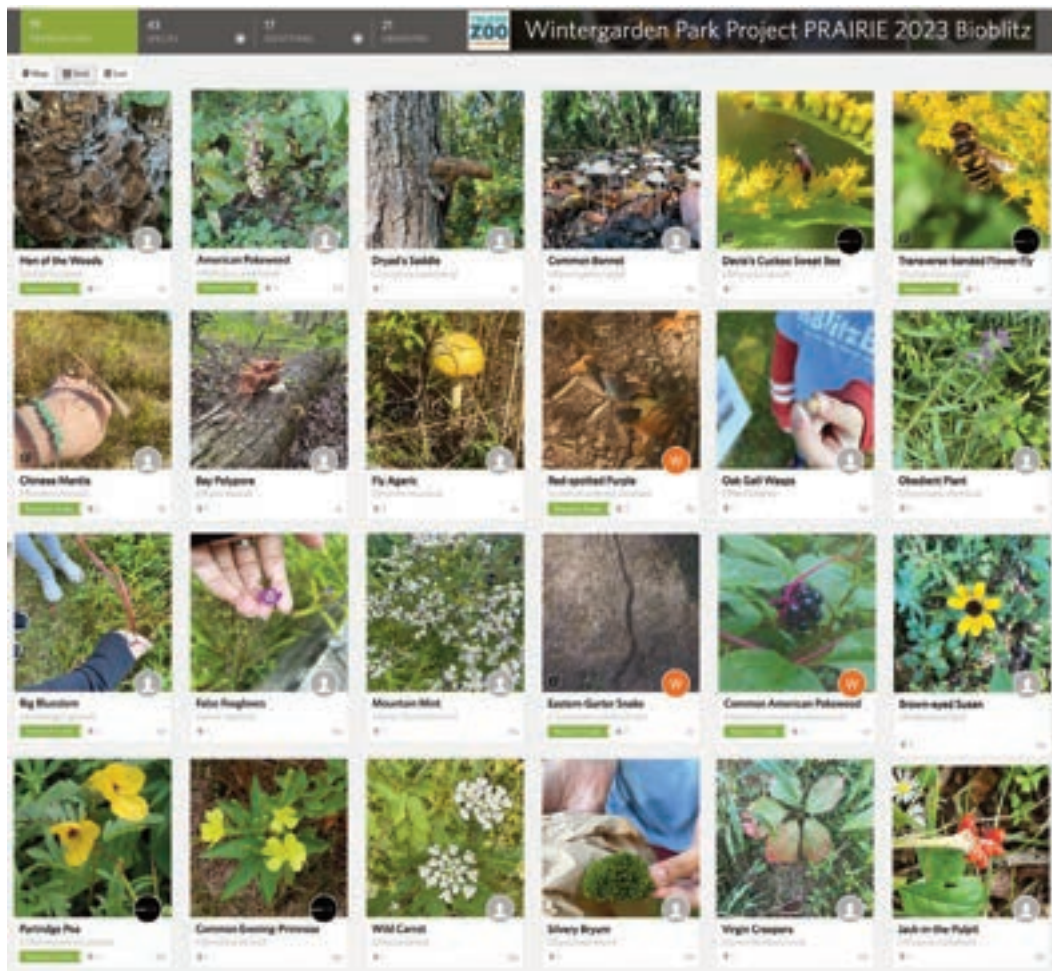
BioBlitz Report

A RECAP OF BIOBLITZ BG 2023

iNaturalist

Using the iNaturalist app, students made 71 recorded observations for Wintergarden Park representing 43 species. 10 observations were classified "Research Grade" which means there is community consensus on a precise identification. Lots of plants were identified along with a few spiders, insects, snails, and slugs. Though the BioBlitz is officially complete, the iNaturalist community will continue to verify observations. The hope is that 50% or more of the observations made during the 2023 Project Prairie BioBlitz will eventually be verified and receive "Research Grade".

Want to see our inventory? Go to <https://tinyurl.com/yrfz483z>



Appendix A: BioBlitz Report & Recognition cont.

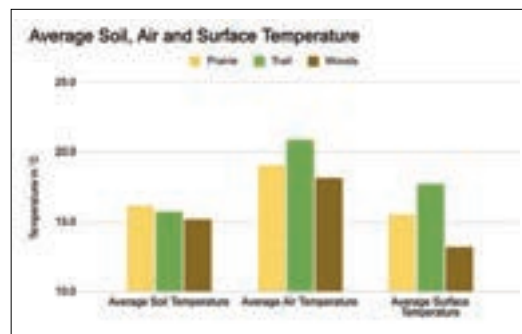
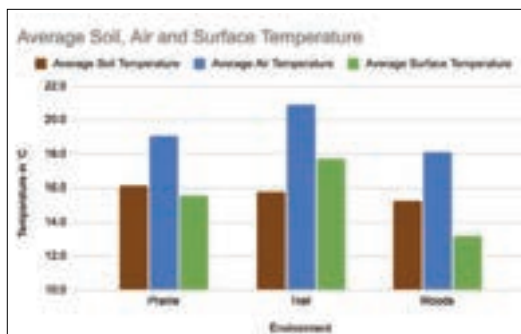
BioBlitz Report

A RECAP OF BIOBLITZ BG 2023

The GLOBE Program: Comparing Soil, Air, and Surface Temperatures of the Prairie, a Short-Grass Trail, and the Woods

We collected soil, air, and surface temperature measurements to compare the prairie to nearby places (the prairie's short grass trail and the woods). Here is a graph of the data collected. Discuss with your students what they think these results mean. Soil temperatures are typically close to one another, as the soil is a great insulator... even still, the prairie soil temperatures were slightly warmer than the trail or the woods. Perhaps the prairie's soil is more "alive" with microscopic organisms giving off their heat to the environment. The surface temperature of the prairie was significantly cooler than the nearby trail. Why? Tall prairie grasses give off their heat and shade the ground, helping to keep the environment cooler and more ideal for the plant and animal species living there. The prairie surface temperatures taken in full sun were warmer than the shaded forest, however. The prairie air temperatures were warmer than the woods but cooler than on the trail. Why? The prairie plants are living and photosynthesizing, releasing heat back into the air, thus keeping the surface cooler. A cooler surface is needed by the animals and plants residing there.

BioBlitz BG 2023			
	Average Soil Temperature (°C)	Average Air Temperature (°C)	Average Surface Temperature (°C)
Prairie	16.2	19.0	15.6
Trail	15.8	20.9	17.7
Woods	15.2	18.1	13.2



Appendix A: BioBlitz Report & Recognition cont.

BioBlitz Report

A RECAP OF BIOBLITZ BG 2023

What Are Seed Drops?

Students got messy and made Seed Drops by combining clay and wildflower seeds rolled into golf-ball sized 'drops'. These little balls of clay use a planting technique that is actually hundreds of years old. The clay protects the seeds from hungry insects and birds, while the soil provides organic matter and nutrients. When conditions are right (water, temperature, sunlight), the seed drops will break down and the seeds will germinate into flowering plants that will provide habitat and food for our important pollinator friends.

We used a Monarch Butterfly attracting (as well as other pollinators) wildflower seed mix and can't wait to see all of the Monarch Sanctuaries popping up northwest Ohio in the Spring!



Easy Planting Instructions

Unlike most sowing techniques, Seed Drops should not actually be buried in soil. They need to be placed (or 'dropped') on the soil surface. These plants will grow best in full to partial sun – in a spot that receives at least 4 hours of sun daily. Seed Drops are usually marketed as "throw and grow" - so students were challenged to toss or sling-shot them in random spots to beautify their yard and community! Fall planting works best in our area due to our cold winters with snow cover. Seed Drops do not need to be watered in the Fall as the upcoming snow will help the clay break down, so the seeds are ready to grow when the ground warms up in the Spring.

How to Make Seed Drops

1. Use your thumbs to flatten clay and make into a bowl

NOTE: Add water to clay if it is not easily molded

2. Add a teaspoon (5 cc scoop) of mixed native pollinator seeds appropriate for your region into the bowl with a little bit of potting soil
3. Pinch the bowl shut and roll into a ball. Roll the ball around in a few extra seeds and soil.
3. Put the Seed Drops in a paper bag (left open) and let them dry for several days
4. Simply drop them on bare soil (rake the soil up a bit if possible)
5. Next spring, watch for the seeds to germinate and grow

"To Plant a Garden is to Believe in Tomorrow"- Audrey Hepburn

Appendix A: BioBlitz Report & Recognition cont.

BioBlitz Report

Sentinel-Tribune

Kenwood students visit prairie and become citizen scientists

Marie Thomas | September 26, 2023



Fifth-graders Paige Fallois, left, and Lily Bell make seed bombs as part of BioBlitz.

Photos by Marie Thomas-Baird | Sentinel-Tribune

More than 100 Bowling Green students were introduced to pollinators, seed balls and air temperatures in the third annual BioBlitz.

Kenwood Elementary fourth and fifth graders spent Tuesday morning in the prairie at Wintergarden/St. John's Nature Preserve.

This was the first BioBlitz for the 110 students who attended.

"I really hope they have an appreciation for some of the things that are in their backyard," said Kenwood Principal Mike Bechstein. "I really want them to explore and understand the science around them."

This was also Bechstein's first BioBlitz.

"I'm excited to get the kids outside and learning in a beautiful park we have here," he said. BioBlitz gets students outside into outdoor classrooms.

"Kids love to do science, and this gets them out of the traditional classroom setting and gets them outside learning about the prairie," Jenna Pollock said.



Fifth-grader Blair Balzonado tests the air temperature with the help of BGSU student Olivia Fleet.

Pollock is an education program manager at Bowling Green State University's Northwest Ohio Center for Excellence in STEM Education. Twenty-five future teachers who attend BGSU helped lead the students to the four stations and assisted with the activities.

"The goal is for them to see themselves as citizens scientists, to know that they can contribute to the larger scientific community by taking observations and documenting things that they see in nature," Pollock said about the elementary students.

She added she hopes the day will instill a love of science and outdoor environmental education.

Students experienced four different activity stations in the Wintergarden Park prairie. They measured soil and air temperature, used an iNaturalist app to observe living things, made seed bombs to take home and learned about animals that live and adapt in the area.

"By the time you leave, I want you to be able to go home and talk to your family about what you did today as a citizen scientist," Pollock told the students.

She challenged them to let their curiosity get the best of them and ask a lot of questions.

"It's really just fun, it's exploring nature," said Denis Monahan, who is in fifth grade. "This is really a special occasion for me."

He said when he got home, he was going to tell his parents he had a lot of fun at a nature park.



Alex Burns, with the Toledo Zoo, shows a coyote pelt to students.

Students will take the day's experiences and return to the prairie they have at Kenwood and apply some of the knowledge they gained, said Angie Schaal, executive director of teaching and learning at Bowling Green City Schools.

Project PRARRR, in partnership with the Toledo Zoo, was introduced to Kenwood Elementary last summer.

"I want them to leave with new knowledge from the centers that they participate in and also just this great experience they make as a memory," Schaal said.

Fifth-grader James Fisher said he was enjoying the day and enjoyed making the seed bombs.

Schaal praised the partnership the school system has with BGSU and its willingness to provide such opportunities to students.

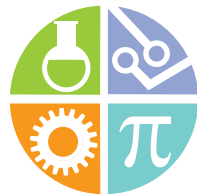
"They love this day. They get all excited over it and they talk about it forever," she said. "It's one of those experiences they don't forget."

APPENDIX B: WOMEN IN STEM REPORT, ADVERTISING, & RECOGNITION

Women in STEM Annual Report



2023



Women
in STEM

Science, Technology, Engineering, & Mathematics

bgsu.edu/nwo/programs/women-in-stem

EVALUATION REPORT



440

People attended this high-energy event



341

Students from 16 different schools in northwest Ohio



61

Session presenters and co-presenters

The Northwest Ohio Center for Excellence in STEM Education at Bowling Green State University's College of Education and Human Development has held the **Women in STEM** event since 2014, and this year, 2023, marks its 40th anniversary!

6th – 8th grade students attended this high-energy and impactful event on November 1st, to learn more about STEM fields of study and STEM careers through engagement in hands-on inquiry activities.

Sponsors of the event included BGSU, The Harold and Helen McMaster Foundation, The Anderson's, Lubrizol and the Ohio STEM Learning Network of Battelle.

BGSU. A PUBLIC UNIVERSITY
FOR THE PUBLIC GOOD.



BGSU | College of Education and
Human Development
BOWLING GREEN STATE UNIVERSITY

Appendix B: Women in STEM Report, Advertising, & Recognition cont.

Women in STEM Report



PARTICIPATING SCHOOLS

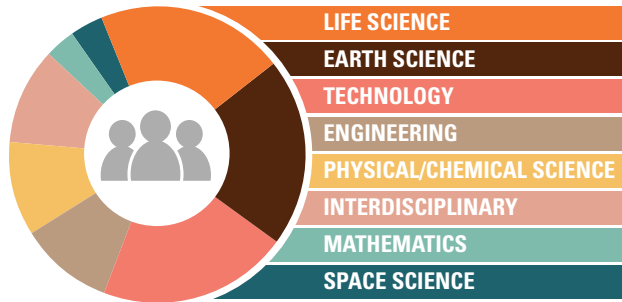
Bowling Green Middle School
 Bryan Middle School
 Buckeye Central Middle School
 Chase STEMM
 Eastwood Middle School
 Edgerton High School
 Fassett Junior High School
 Hawkins STEMM Academy
 Hull Prairie Intermediate School
 Jefferson Junior High
 Marshall STEMM Academy
 McKinley STEMM Academy
 Northwood Elementary
 Riverdale Middle School
 Spencerville Middle
 Toledo Islamic Academy

 **6** Suburban

6 Rural 

 **5** Urban

SESSION STRANDS



28 UNIQUE PRESENTATIONS

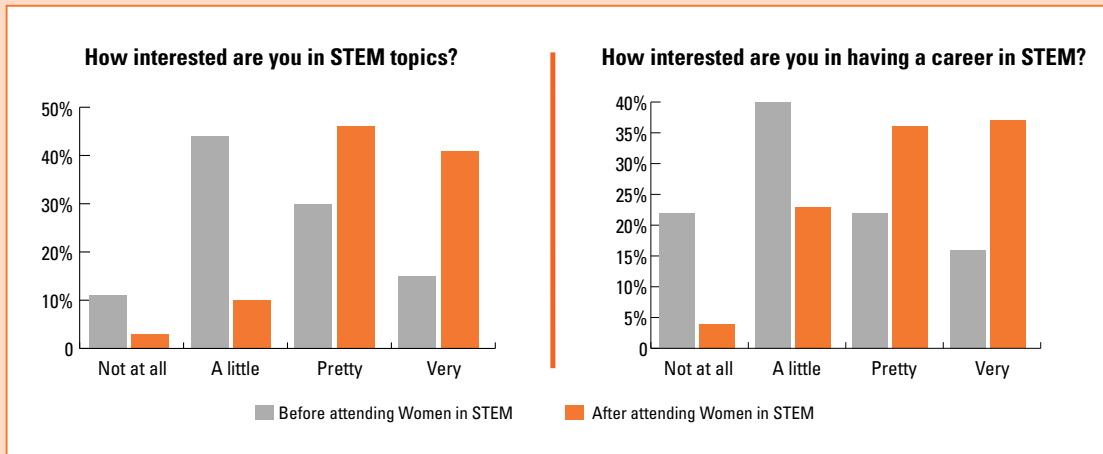
- Building Up Girls: Wall Edition
- CSI - You are the detective!
- Career Opportunities in the Natural Gas and Oil Industry
- Careers in Environmental Science with a focus on Herpetology
- Chemilumi...What?!
- Coding Fun with Ozobots
- ENVIROSCAPE MODEL: Hazardous Waste Disposal & Cleanup
- Gelling with Science
- Interactive Art with Paper Circuits
- Let's Get Unruly with Splats!
- Let's Start Driving!
- Life on the Beach in Ohio - 390 Million Years Ago!
- Look at the Skies and be Mesmerized!
- Making Pigs Fly: Exploring the Intersection of Entrepreneurship and STEM Through the Creation and Pitching of a Wacky Invention
- Marble Machines
- Mursion Classroom Sim
- Navigating Our World
- PaperCity
- Playing in the Dirt! Soil Science as a Foundation for Many Outdoor Careers
- Satellite Images to See Earth
- Science Careers in Forensics
- Smashing Strawberries: A Hands on Path to STEM Interest & School Connections
- Solving Problems of Infinity and Beyond: Women in Mathematics
- Unlocking Digital Secrets: A Journey into Cybersecurity and Digital Investigation
- Wetland Marvels
- Water Quality
- Wildlife Conservation
- Zoo Careers in STEM



Appendix B: Women in STEM Report, Advertising, & Recognition cont.

Women in STEM Report

STUDENT RESPONSES



STUDENT COMMENTS

"I loved learning about forensic science and math. All the activities were enjoyable."

"I loved my experience. I had fun in every class, and now I think I want a job in STEM."

“

Throughout my time visiting BGSU and participating in Women in STEM, I enjoyed it. The topics we explored were amazing! I loved my time here and it has increased my interest and appreciation for STEM. I hope I'll be able to come back next year!

“

GREAT exposure! The activities were fun and interesting. The girls were learning, but not in that traditional classroom setting. I saw a lot of smiling, laughing, and fun.


TEACHER COMMENTS

"I really liked how all the presenters stressed that girls follow their passion. Even though many fields are mostly male dominated in STEM."

"Its excellent exposure to different fields within STEM. Seeing other girls from across the area is also important - helps them to see the significance of the event. Also great exposure to college campus."

Appendix B: Women in STEM Report, Advertising, & Recognition cont.

Recruitment Email - Attendee



**Women
in STEM**
Science, Technology, Engineering & Mathematics

Empowering young women in science, technology, engineering, and mathematics. Fostering confidence and inspiration.

Wednesday, November 1, 2023

This event is geared toward students in grades 6, 7, & 8 who will be exposed to careers in the STEM fields through hands-on activities when they visit BGSU to participate in STEM educational workshops and sessions.

The goals for this event are to:

- Offer a highly engaging and interactive experience for students
- Expand students' awareness of potential STEM career paths
- Elevate excitement and confidence in students for pursuing STEM courses/careers

**Each school is limited to 20 students
Please register by October 13, 2023**

2023 Schedule:

- 8:30 - 9:00 am – Schools arrive and Check-In
- 9:05 - 9:45 am – Keynote Presentation
- 9:55 - 10:40 am – (Session 1)
- 10:50 - 11:35 pm – (Session 2/Lunch A)
- 11:45 - 12:30 pm – (Session 3/Lunch B)
- 12:40 - 1:25 pm – (Session 4)
- 1:35 - 2:00 pm – Whole Group Session
- 2:00 - 2:30 pm – Adjourn

School Registration

Please click on the link below to register students.
<https://forms.gle/DcB4eXBW225qZYJdZ>

Registration Deadline is October 13, 2023
Cost per student: \$30
Cost per teacher/chaperone: \$30

Please be advised once BGSU reaches capacity, schools will be notified and placed on a waiting list.

For additional details visit the Women in STEM webpage at <http://www.bgsu.edu/nwo/programs/women-in-stem.html>

All who wish to attend Women in STEM are welcome regardless of their gender.

Sponsored in part by:



The Harold and Helen McMaster Foundation

Appendix B: Women in STEM Report, Advertising, & Recognition cont.

Presenter Recruitment Flyer

40th Annual Women in STEM program at BGSU!



Presentation Proposals are now being accepted for

Women in STEM



**Women
in
STEM**

Science, Technology, Engineering, & Mathematics

Wednesday, November 1, 2023

We invite you to facilitate a hands-on session (45 minutes) for a group of 15-20 students to highlight a STEM topic and/or career in order to instill awareness, excitement, and passion for STEM disciplines!

The goal of the **Women in STEM** program at BGSU is to provide a rewarding experience for 6th - 8th graders that connects STEM education to the real world and sparks an interest in pursuing STEM majors in high school and beyond and ultimately STEM careers.

There will be groups of approximately 15 -20 students with adult supervision in each break-out session. Sessions should include innovative and creative hands-on activities that are fun-filled and engaging. We would like to foster a collaborative growth-minded atmosphere in the breakout sessions that gives students opportunities to interact with one another and YOU as a STEM academic/career role model.

We rely on the support of our presenters and volunteers like you in order to continue to provide this unique experience for this age group. We are thrilled to host the 40th annual **Women in STEM** program at BGSU and look forward to your participation!

The deadline to register is October 6, 2023

Please contact: nwo@bgsu.edu with any questions.

Registration link: <https://tinyurl.com/258swxek>

If necessary, the planned in-person event may switch to a virtual format.

We provide classroom and/or lab space, AV equipment, and support.

All who wish to attend Women in STEM are welcome regardless of their gender.

Sponsored in part by:

**The Harold and Helen
McMaster Foundation**



BGSU University of Education & Human Development
ACADEMIC ACHIEVEMENT. CAREER OPPORTUNITIES.



Lubrizol

2023 Schedule

8:30 - 9:00 am - Schools arrive and Check-In
9:05 - 9:45 am - Keynote Presentation
9:55 - 10:40 am (Session 1)
10:50 - 11:35 pm (Session 2/Lunch A)
11:45 - 12:30 pm (Session 3/Lunch B)
12:40 - 1:25 pm (Session 4)

Appendix B: Women in STEM Report, Advertising, & Recognition cont.

Women in STEM Recognition



BGSU WEEKLY
Thursday, Jan. 11, 2024

RESEARCH & INNOVATION

BGSU Master of Architecture program becomes only one in northwestern Ohio to earn full NAAB accreditation

The full, eight-year term paves the way for BGSU Master of Architecture graduates to secure professional licensure upon graduation.

BGSU in the *News*

ODHE awards BGSU, UToledo joint \$1.7M grant to bolster Ohio's mental health workforce

BGSU Schmidthorst College of Business experiences continued growth, academic program interest

Women in STEM program at BGSU continues to spark interest in science, math-related careers

THE BLADE

Ohio BUSINESS

SPECTRUM NEWS


Appendix B: Women in STEM Report, Advertising, & Recognition cont.

Women in STEM Recognition

Tuesday, October 31, 2023, 12:28PM | WP

THE BLADE

Home | Local | News | Sports | A&E | Business | Opinion | Contact Us | eBlade









BGSU hosting 40th annual Women in STEM event

THE BLADE

Get a news tip? 419-724-6065
webtips@theblade.com

OCT 30, 2023 7:00 AM

-  BOWLING GREEN -- Bowling Green State University will hold the 40th annual Women in STEM event for sixth through eighth grade students from 9 a.m. to 2 p.m. Wednesday at the Bowen-Thompson Student Union.
- 
- 
- 
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Presented by the Northwest Ohio Center for Excellence in STEM Education in the BGSU College of Education and Human Development, the Women in STEM program will highlight science, technology, engineering and mathematics career opportunities for 350 students.

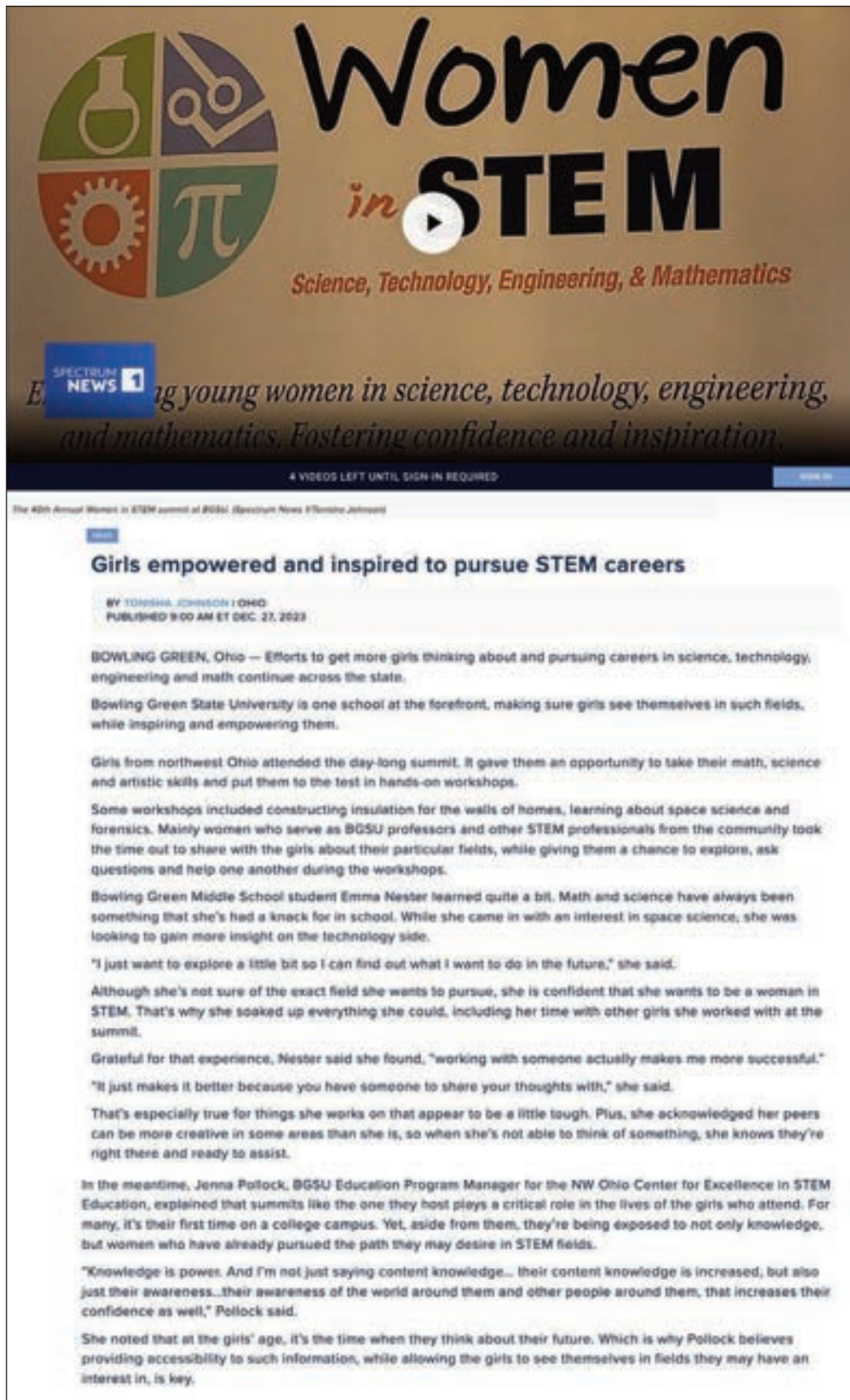
Students will explore and perform experiments in physics, astronomy, chemistry, biology, engineering, mathematics and technology.

Presenters from a wide range of STEM professions, including BGSU faculty, will offer breakout sessions and hands-on workshops. NASA Langley Research Center physical scientist Jessica Taylor will give the keynote address. Based in Hampton, Va., Ms. Taylor leads the Science Directorate's Science Activation team.


As part of BGSU, NWO is one of seven hubs in the Ohio STEM Learning Network and partners with area universities, K-12 schools and community partners to advance STEM education for people of all ages.

Appendix B: Women in STEM Report, Advertising, & Recognition cont.

Women in STEM Recognition



Women in STEM
Science, Technology, Engineering, & Mathematics

SPECTRUM NEWS  *Empowering young women in science, technology, engineering, and mathematics. Fostering confidence and inspiration.*

4 VIDEOS LEFT UNTIL SIGN-IN REQUIRED [VIEW ALL](#)

The 40th Annual Women in STEM summit at BGSU | Spectrum News | Tomisha Johnson

Girls empowered and inspired to pursue STEM careers

BY TOMISHA JOHNSON | OHIO
PUBLISHED 9:00 AM ET DEC. 21, 2023

BOWLING GREEN, Ohio — Efforts to get more girls thinking about and pursuing careers in science, technology, engineering and math continue across the state.

Bowling Green State University is one school at the forefront, making sure girls see themselves in such fields, while inspiring and empowering them.

Girls from northwest Ohio attended the day-long summit. It gave them an opportunity to take their math, science and artistic skills and put them to the test in hands-on workshops.

Some workshops included constructing insulation for the walls of homes, learning about space science and forensics. Mainly women who serve as BGSU professors and other STEM professionals from the community took the time out to share with the girls about their particular fields, while giving them a chance to explore, ask questions and help one another during the workshops.

Bowling Green Middle School student Emma Nester learned quite a bit. Math and science have always been something that she's had a knack for in school. While she came in with an interest in space science, she was looking to gain more insight on the technology side.

"I just want to explore a little bit so I can find out what I want to do in the future," she said.

Although she's not sure of the exact field she wants to pursue, she is confident that she wants to be a woman in STEM. That's why she soaked up everything she could, including her time with other girls she worked with at the summit.

Grateful for that experience, Nester said she found, "working with someone actually makes me more successful."

"It just makes it better because you have someone to share your thoughts with," she said.

That's especially true for things she works on that appear to be a little tough. Plus, she acknowledged her peers can be more creative in some areas than she is, so when she's not able to think of something, she knows they're right there and ready to assist.

In the meantime, Jenna Pollock, BGSU Education Program Manager for the NW Ohio Center for Excellence in STEM Education, explained that summits like the one they host plays a critical role in the lives of the girls who attend. For many, it's their first time on a college campus. Yet, aside from them, they're being exposed to not only knowledge, but women who have already pursued the path they may desire in STEM fields.

"Knowledge is power. And I'm not just saying content knowledge... their content knowledge is increased, but also just their awareness...their awareness of the world around them and other people around them, that increases their confidence as well," Pollock said.

She noted that at the girls' age, it's the time when they think about their future. Which is why Pollock believes providing accessibility to such information, while allowing the girls to see themselves in fields they may have an interest in, is key.

APPENDIX C: GLOBE STUDENT RESEARCH SYMPOSIUM PROGRAM REPORT, PROGRAMS, AND RECOGNITION

GLOBE Student Research Symposium Report

2024 GLOBE Midwest Regional Student Research Symposium



Over

350

Students from local Northwest Ohio Schools

- Bowling Green Middle School
- Chase STEMM Academy
- Coy Elementary
- Defiance Elementary School
- Hull Prairie Intermediate School
- Kenwood Elementary School
- Marshall STEMM Academy
- McGregor Elementary
- Natural Science Technology Center
- St. Patrick of Heatherdowns
- Toledo Technology Academy of Engineering

On May 6-8, a **GLOBE (Global Learning and Observations to Benefit the Environment) Midwest Student Research Symposium (SRS)** was held at the Toledo Zoo, combining nearly 400 students from northwest Ohio and the Midwest regional states of Illinois, Indiana, Michigan, and Wisconsin. The symposium offered the chance for students to discuss research projects with STEM professionals, share ideas and learn from peers, and explore STEM careers. These symposia are held every spring in each of GLOBE's six U.S. regions.

As part of the program, students created a research project involving the atmosphere, biosphere, hydrosphere, and pedosphere. After a year of collecting data using GLOBE protocols, they presented their research project results at the Symposium, which was held over three-days. The students also collected environmental data at the Zoo and presented those findings as well. The Symposium was enhanced with presentations on environmental issues, the importance of citizen science, and STEM careers from Peg Yacobucci, Ph.D., BGSU, Jodi Haney, Ph.D., Xcite Learning/BGSU, Jaret Daniels, Ph.D. Univ. of Florida, and Alex Burris, Toledo Zoo School and Community Programs Coordinator.

The first day of the Symposium involved over 350 students from local Northwest Ohio schools. The second and third days included over 60 students participating in the Midwest Symposium. These schools from the Midwest region of the United States included Beloit Memorial High School, Lincoln Academy, Wooster High School, Detroit Public Schools, Edgewood Middle School, Garrett High School, Clay High School, Clippert Academy, Melvindale, Power Middle School and Hillside Elementary, and Crestwood High School.



Appendix C: GLOBE Student Research Symposium Report, Programs, and Recognition cont.

GLOBE Student Research Symposium Report

LOCAL STUDENTS PROJECT TITLES

- Air Temperature
- Air Temperature and solar irradiance in relation to solar panel output
- Animal Activity
- Animals in Daytime vs. Nighttime
- Are there more birds in the prairie garden or the garden?
- Birds vs. Mammals
- Black Eyed Susan
- Checking the effect the creek project has on the invertebrates
- Clouds
- Conservation
- Coral Cultivation in the Greenhouse
- Deer in the Prairie
- Dissolved Oxygen in Water
- Do Taller Plant Species Live Longer Than Shorter Plant Species?
- Do we find more carnivores, omnivores or herbivores on the prairie?
- Does personality affect food choices, and vice versa?
- Does solar panel placement matter for collecting energy?
- Effects of Restoration of Hill Ditch
- Effects of Wind direction and speed on wind turbine efficiency
- Exploring cloud cover & wind energy efficiency
- Finding correlation between wind efficiency and barometric pressure
- Flower Change
- Flower Species
- Green Down
- Hill Creek Ditch & Forest Health After Construction
- How does clear cutting the riparian buffer of hill creek ditch affect the turbidity of the creel before and after the new development.
- How is the moisture of the soil different in the prairie versus the lawn?
- How many crickets and grasshoppers are in the lawn and the prairie?
- Humidity levels and wind turbine performance
- IPM with lizards
- In which month do we find the most grasshoppers?
- Is there a greater variety of insects or mammals in the prairie?
- Ladybugs vs. Bees
- Macroinvertebrates recovery due to effects of the Hill Ditch restoration project
- Monoculture vs. Polyculture
- Mushrooms growing in polluted soils
- Native vs. Invasive Plants in the Prairie
- Plants in the Prairie
- Pollinators
- Rabbits in the Prairie
- Seeing if the Restoration project for Hill Creek Ditch has an effect on biodiversity
- Self-sustaining aquaponics systems
- Soil Conductivity
- Soil Temperature
- Soil and Surface Temperature
- Solar panel impact on soil temperature and moisture
- Strawberries and mushrooms
- Study of the effects of nature
- Studying abiotic factors in Hill Ditch
- Studying macroinvertebrates in the Hill Ditch
- Studying the health of Macroinvertebrates in Hill Creek Ditch
- Surface Temperature and Land Cover
- Surface Temperature of Varying Surfaces
- Surface and Air Temperature
- Water Health in the Hill Creek Ditch
- What Animals Call the Prairie Their Home?
- What are the Steps of Decomposition?
- What are the Warmest and Coldest Temperatures in the Prairie Each Month?
- What kinds of plants grow in the prairie?
- What mammals can we find in the prairie?
- What temperature do grasshoppers and crickets come out?
- What temperature do plants go dormant or have live growth?
- Which bird food do birds like better: Nut or Berry?
- Which direction in the Prairie is the Warmest and Coldest Each Month?
- Will a leg defect be passed to the baby Quail?
- pH of Water



Jodi Haney, Professor Emerita BGSU, GLOBE Master Trainer and organizer of the event stated, "Students in grades 5 to 12 shared the results of their hard work in GLOBE research investigations. We were so very impressed with the quality of the presentations, the kindness and focus of students, and of course, with the dedication and passion from all of the educators." Dr. Haney is also owner of Xcite Learning, a co-sponsor of the event.

The Toledo Zoo Project PRAIRIE program works with schools and their districts to have students install prairies on their school grounds to study native prairie habitats.

The Toledo Zoo, Xcite Learning, Bowling Green State University, GLOBE, the Northwest Ohio Center for Excellence in STEM Education at BGSU, and the Ohio STEM Learning Network co-sponsored the event.



Appendix C: GLOBE Student Research Symposium Report, Programs, and Recognition cont.

GLOBE Student Research Symposium Local Program

About Project PRAIRIE: (PRAIRies that InvigoRate Inquiry LEarning initiative), A Wild Toledo Prairie Initiative

Project PRAIRIE extends the Wild Toledo prairie initiative into local classrooms by utilizing the native prairie installations as living labs.

It is an inquiry-based education program that trains students and their teachers to use native prairie habitats for citizen science projects that contribute to a larger body of global research to make a difference in the natural world.

Toledo Zoo conservation staff installs native prairies on the property of participating schools while Zoo education staff trains teachers and students to use the prairies for citizen science, inquiry learning projects and follows up with related classroom programming.

About GLOBE:

The Global Learning and Observations to Benefit the Environment (GLOBE) Program is a worldwide hands-on, science and education program focusing on the environment, now active in over 120 countries worldwide. It works to promote the teaching and learning of science, enhance environmental literacy and stewardship, and promote scientific discovery. Students and teachers collect data and perform research in collaboration with scientists from numerous international agencies, and their work is made accessible through the GLOBE website.

Project Prairie and GLOBE Student Research Symposium (SRS)

Monday, May 6, 2024

Toledo Zoo
Malawi Event Center
9:45 AM - 2:30 PM



Sponsored by: The Toledo Zoo's Project Prairie, The Northwest Ohio Center for Excellence in STEM Education (NWO) at Bowling Green State University's College of Education and Human Development, The University of Toledo's GLOBE Mission EARTH, Youth Learning As Citizen Environmental Scientists (YLACES), and The Ohio STEM Learning Network.



AGENDA

This student...
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for Excellen...
State Univer...
The Univer...
Learning A...
and The Of...

- 9:45 AM **Welcome, Healthy Snack, Poster setup, & Keynote:** Alex Burris, Toledo Zoo School and Community Programs Coordinator
- 10:45 AM **Poster Session A** - Team presentations: **Group A** presents; **Group B** peer review; **Group C** open zoo time in AFRICA
- 11:25 AM **Poster Session B** - Team presentations: **Group B** presents; **Group C** peer review; **Group A** open zoo time in AFRICA
- 12:05 PM **Poster Session C** - Team presentations: **Group C** presents; **Group A** peer review; **Group B** open zoo time in AFRICA
- 12:45 PM **Lunch with Keynote Speaker:** Dr. Jaret Daniels, University of Florida Closing Remarks & Teacher and Student Evaluations
- 1:30 PM **Group Photo**
- 1:45 PM **Zoo Exhibits** Teachers/chaperones take student groups to zoo exhibits of interest.
- 2:30 PM **Return to Bus & Departure**

STUDENT PROJECTS, PRESENTERS, AND PRESENTATION GROUPS

BOWLING GREEN MIDDLE SCHOOL – Dan Stutzman

Names	Title/Topic	Group	Project	Table
Riley Gillispie, Karly Frankart, & Leah Hildebrand	Which direction in the Prairie is the Warmest and Coldest Each Month?	A	1	1
Kate Conway, Vince Rosebrock, Reid Foust, & Gabe Losoya	What are the Warmest and Coldest Temperatures in the Prairie Each Month?	A	2	3
Ava Brujic, Ashton Loomis, Sophia Milks, & Grayson Smith	What is the Warmest Soil Temperature in the Prairie Each Month?	A	3	5
Jaida Jones, Aden Anderson, Izzy Eschedor, & Becca Yarger	What Animals Call the Prairie Their Home?	A	4	6
Isaac Naus, Jack Byers, Andrew Anderson, & Declan Hubbard	Do Taller Plant Species Live Longer Than Shorter Plant Species?	A	5	7
Brooklyn Graber, Shawn Tyler Matthews, Lukas Wesley, & Keira Goberman	What are the Steps of Decomposition?	A	6	9

CHASE STEMM ACADEMY – Sydney Pullano, Madelyn Miller, & Prof. Michael Campbell

Names	Title/Topic	Group	Project	Table
Malan Witcher, Brody McCallister, Mahia Vega-Paulino, Italiya Wilson, & Vontez Watson	Surface Temperature of Varying Surfaces	A	7	10
John Butts, Yohance Williams, Alexis Lang, Kayden Allen, & Bry'Cianna Perkins	Surface Temperature of Varying Surfaces	A	8	11
Ne'Veah Deloney, Shirley Burns, Raven Neal, & Lily Gadie	What time of year do plants go dormant?	A	9	13
Timothy Hampton, Baldomero Gonzalez, Donte Williams, & Kediel Vega-Romero	What time of year do plants go dormant?	A	10	15
Lily Thompson, Davieair Watson, Jordan Alspet, Randy Dobson, Jayda Galloway, Devin Guerrero, & Jeremiah Williams		A	11	17

COY ELEMENTARY – Julie Kujawa & Danielle Laurell

Names	Title/Topic	Group	Project	Table
Odin Arellano, Daniel Morse, Theo Tellez, Mariah Bomyea, Jack Youngston, Santino Vasquez, Emmie Luce, & Khloe Szymanski	Which bird food do birds like better: Nut or Berry?	A	12	21
Marco Gardull, Bradley Bedrin, Charlie Westenberger, Kendyll Klein, Nadine Orta, Ilannah Scott, & Cruize Haynes	Which bird food do birds like better: Nut or Berry?	A	13	22
Lincoln Vargyas, Kameryn Brann, Arielle Stewart, Akollie Parnell, Kyleigh Owens, Cody Gnacke, Cayden Ornelas, & Leleana Serrano	Which bird food do birds like better: Nut or Berry?	A	14	25

DEFIANCE ELEMENTARY – Julie Houck

Names	Title/Topic	Group	Project	Table
Mali Lillemon, Annabelle Houck, Lydia James, & Adalyn James	Clouds	A	18	30
Malaki Wieland, Gunnar Lillemon, & Blake Cicity	Surface Temperature	A	19	31

Appendix C: GLOBE Student Research Symposium Report, Programs, and Recognition cont.

GLOBE Student Research Symposium Regional Program

About Project PRAIRIE: (PRAIRies that InvigoRate Inquiry LEarning initiative), A Wild Toledo Prairie Initiative

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Project Prairie and GLOBE Midwest Student Research Symposium (SRS)

May 6-8, 2024
Toledo Zoo



Sponsored by: The GLOBE Program, The Toledo Zoo's Project Prairie, Xcite Learning, The University of Toledo's GLOBE Mission EARTH, The Northwest Ohio Center for Excellence in STEM Education (NWO) at Bowling Green State University's College of Education and Human Development, and The Ohio STEM Learning Network.



AGENDA

May 6

5:00 - 7:00 PM **Regional Students Arrive, Check-In** at SRS Welcome Desk at hotel, Check-in to rooms. PreSurvey & Yard Games. **[LOCATION: Renaissance Toledo Downtown Hotel, 444 N Summit St, Toledo, OH 43604]**

7:00 - 9:00 PM **Private Imagination Station Night:** Film and open exploration time and buffet dinner **[LOCATION: Imagination Station, 1 Discovery Way, Toledo, OH 43604]**

10:30 PM **In Rooms with Lights Out!**

May 7

9:45 AM **Welcome, Breakfast, & Keynote:** **[LOCATION: Toledo Zoo, Malawi Event Center, 2 Hippo Way, Toledo, OH 43609]**

10:45 AM **Poster Session A** - Team presentations: **Group A** presents; **Group B** peer review; **Group C** open zoo time in AFRICA

11:25 AM **Poster Session B** - Team presentations: **Group B** presents; **Group C** peer review; **Group A** open zoo time in AFRICA

12:05 PM **Poster Session C** - Team presentations: **Group C** presents; **Group A** peer review; **Group B** open zoo time in AFRICA

12:45 PM **Lunch with Keynote Speaker:** Dr. Jaret Daniels, University of Florida

1:30 PM **Group Photo**

1:45 PM **Open Zoo Time:** Teachers/chaperones take student groups to zoo exhibits of interest.

3:00 - 5:00 PM **Project Prairie & GLOBE Data Collection:** Student Choice
Option A: Surface Temperature (clouds & IR thermometer)
Option B: Atmosphere (clouds, air temperature, & precipitation)
Option C: TerraRover (surface temperature robot)
Option D: Hydrology in Reflection Pool (transparency, temperature, pH, conductivity, etc.)
Option E: Carbon (tree heights & carbon storage)
Option F: Biosphere (Green up & iNaturalist)

AGENDA cont.

5:00 PM **Closing Remarks, Chill Out with Games:** **[LOCATION: Toledo Zoo, Malawi Event Center, 2 Hippo Way, Toledo, OH 43609]**

6:30 PM - 10:30 AM **Zoo Snooze:** (enrichment creation, behind the scenes with a night zoo keeper, and more). Pizza dinner and breakfast provided. **[LOCATION: Toledo Zoo, 2 Hippo Way, Toledo, OH 43609].**

May 8

9:00 AM **School Chaperones check out** of the hotel and Charter brings them to the zoo

9:45 AM Light Breakfast for staff and school chaperones at the zoo. Take down posters

10:15 AM **Welcome Back:** **[LOCATION: Toledo Zoo, Malawi Event Center, 2 Hippo Way, Toledo, OH 43609]**
 - Overview of day
 - Students work in teams of 4-5 to create a non-traditional presentation of what they've learned from data collection on Tuesday. Various materials for presentations will be available.

11:00 AM Presentation Creation Time

12:30 PM **Lunch with Keynote Speaker:** Dr. Kevin Czajkowski, Toledo Urban Heat Island Study

1:00 PM **Team Data Collection Presentations:** Student presentations with chaperones and SRS planning team in attendance

2:15 PM **Break**

2:30 PM **Award Ceremony Closing Remarks:** Teacher and Student Evaluations

This Midwest from: The GLOBE Program, The Northwest Ohio Center for Excellence in STEM Education (NWO) at Bowling Green State University's College of Education and Human Development, and The Ohio STEM Learning Network.



Appendix C: GLOBE Student Research Symposium Report, Programs, and Recognition cont.

GLOBE Student Research Symposium Recognition

THE BLADE Thursday, May 09, 2024, 7:00am



Toledo Zoo hosts student research symposium

 **ERIC TAUNTON**
The Blade
@taunton@theblade.com

Learning outside a classroom is better than doing it inside one, elementary students have told a local educator.

Through Project Prairie, youngsters have learned different things about plant life, like its diversity as well as native pollinators. The Toledo Zoo program works with schools and their districts to have students install and study native prairie habitats.

"When I walked around and I talked to the kids, ... I asked, 'So what's better, classroom learning or what you did with your research in the field?'" said Jodi Haney, owner of XCite Learning in Maumee. "Every single one of them got big smiles on their faces and said, 'What we did in the field.' And I asked, 'Why?' They said, 'It's hands-on, we learn more, and we're helping the community.'"

As part of the program, students from states throughout the region, including Illinois, Indiana, Michigan, Ohio, and Wisconsin, chose a question they wanted answered that regarded the atmosphere, biosphere, hydrosphere, and pedosphere.

After a year of collecting data to answer those questions, nearly 400 students presented their findings as part of the Prairie Student Research Symposium, a three-day event that saw them communicate their results at the zoo Tuesday. They will also tour the zoo to collect environmental data and present those findings Wednesday.

The symposium is the child of a partnership among the Toledo Zoo, XCite Learning, Bowling Green State University, and Global Learning and Observations to Benefit the Environment, or GLOBE.

Students like Dylan Levy, 16, a sophomore in Detroit Public Schools, used GLOBE scientific protocols to find results on topics like the effects pharmaceuticals have on radish germination, discovering that water without pharmaceutical properties works best for their growth.

Mich Magditch, the zoo's director of education, said the symposium helps "break down stereotypes of who scientists are."

"I do an exercise with teachers ... where I have them draw me a picture of a scientist, and it is always gender-based," he said. "It's always male. It's never a person of color. ... We're trying to break down those stereotypes. Even a kindergarten student can be a scientist. We're basically putting them in a position where they gain confidence and feel like they can do this."

Appendix C: GLOBE Student Research Symposium Report, Programs, and Recognition cont.

GLOBE Student Research Symposium Recognition

May 8, 2024



News Clips

News stories featured in the Ohio Department of Education and Workforce's News Clips may require a paid subscription.

State and Local Education News

[Toledo Zoo hosts student research symposium](#)

Toledo Blade

Learning outside a classroom is better than doing it inside one, elementary students have told a local educator. Through Project Prairie, youngsters have learned different things about plant life, like its diversity as well as native pollinators. The Toledo Zoo program works with schools and their districts to have students install and study native prairie habitats. "When I walked around and I talked to the kids, ... I asked, 'So what's better, classroom learning or what you did with your research in the field?'" said Jodi Haney, owner of XCite Learning in Maumee. "Every single one of them got big smiles on their faces and said, 'What we did in the field.' And I asked, 'Why?' They said, 'It's hands-on, we learn more, and we're helping the community.'"

APPENDIX D: NWO STEM INQUIRY SERIES REPORT & ADVERTISING

NWO STEM Inquiry Series Report

2024 STEM INQUIRY SERIES



BGSU A PUBLIC UNIVERSITY FOR THE PUBLIC GOOD.

The **NWO STEM Inquiry Series** was back by popular demand during the Spring of 2024. This professional development workshop series was designed to engage educators in quality STEM education to learn skills and concepts in STEM teaching and learning.

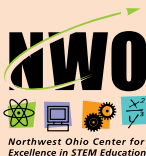
The **Inquiry Series** featured four 3-hour long inquiry-based and hands-on sessions from some of the northwest Ohio area leading names in STEM education research and professional development.

Session topics included concepts from the Ohio Department of Education STEM School Quality Model: A Culture for STEM Learning, STEM as an Approach to Teaching and Learning, and Pathways to Careers.

The series was sponsored by Bowling Green State University's College of Education and Human Development, NWO, and the Ohio STEM Learning Network and offered free registration for all educators (in-service/pre-service teachers, higher education faculty, and business/community partners in the region) which included dinner at each session and Contact Hour Certificates.

The participants walked away from each session with ready to implement activities and strategies to enhance STEM teaching and learning in their classrooms.

Each session had approximately 20 educators attend and offer highly positive feedback on the value and relativity of the sessions.



1

Personalized Learning Framework

Learn about the Personalized Learning Framework as it relates to STEM education and the STEM Quality Model.

February 15, 2024

Facilitator: Heather Townley, Educational Service Center of Lake Erie West

2

Scaffolding STEM Culture through Design Thinking, Invention, and Entrepreneurial Spirit

Engage in experiences that enhance building the STEM/STEAM culture in your school. Participants will explore a framework of activities focused on scaffolding design thinking and invention.

March 12, 2024

Facilitator: Jason Hubbard, Dept. of Teaching & Learning, Perrysburg Schools

3

From Barriers to Belonging: Fostering Equity and Excellence with Design Thinking

(Unfortunately this session had to be cancelled due to the facilitator being ill)

This interactive session will feature hands-on Design Challenge experiences to create an environment where every student feels valued, respected, and capable of success in STEM.

April 18, 2024

Facilitator: Paige Espiritu, Assistant Technology Director, Ottawa Hills Local School District

4

Introduction to Computer Science for K-8

Teaching computer science in early grades develops critical computational thinking skills in young learners. This professional development session will focus on methods to integrate computer science standards into core subjects and cultivating early computational skills in K-8 students.

May 15, 2024

Facilitator: Christine Danhoff, Technology Integration Specialist, North Point Educational Service Center

Appendix D: NWO STEM Inquiry Series Report & Advertising cont.

NWO STEM Inquiry Series Recruitment Flyer

Introducing the new **NWO** **2024 SPRING STEM** **INQUIRY SERIES!**

The **STEM Inquiry Series** will feature **FOUR** 3-hour long inquiry-based presentations from some of the leading names in STEM education research and professional development during the Spring of 2024. Session topics include concepts from the Ohio Department of Education STEM School Quality Model: A Culture for STEM Learning, STEM as an Approach to Teaching and Learning, and Pathways to Careers. The series is sponsored by Bowling Green State University's College of Education and Human Development, NWO, and the Ohio STEM Learning Network.

Session ONE

Personalized Learning Framework

Learn about the Personalized Learning Framework as it relates to STEM education and the STEM Quality Model.

February 15th, 2024

Facilitator: Heather Townley,
Educational Service Center of Lake Erie West
BGSU Levis Commons, 1655 North Wilkinson Way Perrysburg, OH
5:00 pm - 8:00 pm (dinner provided)

Registration: <https://forms.gle/VjhojP1f98iotpDe7>

Session FOUR

Introduction to Computer Science for K-5

Teaching computer science in early grades develops critical computational thinking skills in young learners. This professional development session will focus on methods to integrate computer science standards into core subjects and cultivating early computational skills in K-5 students.

May 15, 2024

Facilitator: Ifrah Aliawl, Ohio STEM Learning Network
BGSU Levis Commons, 1655 North Wilkinson Way Perrysburg, OH
5:00 pm - 8:00 pm (dinner provided)

View full session descriptions
on NWO's website



Session TWO

Scaffolding STEM Culture through Design Thinking, Invention, and Entrepreneurial Spirit

Engage in experiences that enhance building the STEM/STEAM culture in your classroom/school. Participants will explore a framework of activities focused on scaffolding design thinking and invention.

March 12th, 2024

Facilitator: Jason Hubbard
Dept. of Teaching & Learning, Perrysburg Schools
BGSU Levis Commons, 1655 North Wilkinson Way Perrysburg, OH
5:00 p.m. – 8:00 p.m. (dinner provided)

Session THREE

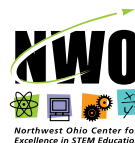
From Barriers to Belonging: Fostering Equity and Excellence with Design Thinking

This interactive session will feature hands-on Design Challenge experiences to create an environment where every student feels valued, respected, and capable of success in STEM.

April 18, 2024

Facilitator: Paige Espiritu, Assistant Technology Director,
Ottawa Hills Local School District
BGSU Levis Commons, 1655 North Wilkinson Way Perrysburg, OH
5:00 p.m. – 8:00 p.m. (dinner provided)

Certificates for contact hours will be provided.



APPENDIX E: NWO STEM COLLABORATIVE REPORT & ADVERTISING

NWO STEM Collaborative Report

The Northwest Ohio STEM Collaborative

The series featured four engaging and STEM-packed professional learning sessions hosted at different locations around northwest Ohio:

Session 1:
October 11 - Hosted by the Learning Blade at the ESC of Lake Erie West

Session 2:
December 5 - Hosted by Hull Prairie Intermediate STEM School in Perrysburg

Session 3:
February 6 - Hosted by Ottawa Hills Jr. & Sr. High STEM Program

Session 4:
May 8 - Hosted by Hawkins STEM Academy & Waterville Primary STEM School at BGSU Levis Commons location
(Note: this session had to be canceled)

This year's 'REIMAGINED' series of professional development sessions boasted:

* **New Content** * **New Format**
* **New Locations** * **New Ideas**

NWO STEM Collaborative Report

The Northwest Ohio Center for Excellence in STEM Education at Bowling Green State University co-facilitated the Third Annual Northwest Ohio STEM Collaborative in partnership with the ESC of Lake Erie West.

The NWO STEM Collaborative is a network of individuals interested and invested in STEM educational opportunities for the youth of northwest Ohio. The group was open to all educators, administrators, and community partners looking to learn, grow, and share about STEM education and opportunities.

Using the feedback from past participants, the NWO STEM Collaborative was reimagined and innovated for the 2023-2024 school year! Each session focused more deeply on one relevant STEM resource, expert, or topic.

The target audience remained: STEM Teachers, Content teachers looking to incorporate STEM curriculum, Pre-service teachers, District Administrators, Business partners, and Community members involved with or wanting to learn more about STEM education.

The NWO STEM Collaborative aims to:

- **Connect** with area STEM community members
- **Share** resources, methods, and ideas to enhance STEM experiences for students
- **Learn** from peers and local experts
- **Grow** as active STEM community members

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Ohio STEM Learning Network

Appendix E: NWO STEM Collaborative Report & Advertising cont.

NWO STEM Collaborative Recruitment Email

EDUCATIONAL SERVICE CENTER OF LAKE ERIE WEST
Quality People. Professional Service.

STEM

The Northwest Ohio STEM Collaborative

Calling all STEM-thusiasts!
The Northwest Ohio STEM Collaborative is a network of individuals who are interested and invested in STEM educational opportunities for the youth of northwest Ohio. This group is open to all educators, administrators, and community partners looking to learn, grow, and share about STEM education and opportunities.

The NWO STEM Collaborative aims to:

- Connect with area STEM community members
- Share resources, methods, and ideas to enhance STEM instruction
- Learn from peers and local experts
- Grow as active STEM community members

Using the feedback from past participants, the NWO STEM Collaborative has been reimagined and innovated for the 2023-2024 school year! Each event will focus more deeply on one relevant STEM resource, expert, or topic.

*** New Content * New Format * New Locations * New Ideas ***

SESSION 3 DETAILS

You are invited to Ottawa Hills Jr./Sr. High School for the opportunity to explore some of the unique and innovative STEAM spaces, as well as to learn more about the STEAM courses and curriculum used at the school. There will also be time during this session for you to ask questions and engage in conversation with one another about common problems of practice that STEM/STEAM teachers experience.

Be sure to register today!

Date: February 6, 2024

Time: 3:45 pm - 5:00 pm

Location: Ottawa Hills Jr./Sr. High School
2532 Evergreen Road, Ottawa Hills, OH 43066

Cost: Free

Contact Hours: Participants will be issued a certificate for 1.25 contact hours

Questions: Please contact [Natalie Crofts](#) with any questions regarding the NWO STEM Collaborative.

Registration: Please use the button below to register. Contact [Lisa Pebray](#) with any questions regarding registration.

SESSION 3 Registration - February 6, 2024

Please save the dates for the additional NWO STEM Collaborative Sessions for the 2023-2024 school year. Keep an eye out for future flyers with additional session details and registration information. Our final session is scheduled for 5/8/2024.

NWO **BGSU** College of Education and Human Development
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This series is facilitated through a partnership between the ESC of Lake Erie West and the Northwest Ohio Center for Excellence in STEM Education at Bowling Green State University.

APPENDIX F: PROJECT EDUCATE REPORTS, ADVERTISING, & RECOGNITION

Project EDUCATE Educators of Color Panel Report

Educators of Color Panel

The panel was sponsored by the College of Education and Human Development Teacher Education program and the Northwest Ohio Center for Excellence in STEM Education (NWO) at Bowling Green State University.



TOPICS DISCUSSED INCLUDED

- The issues and challenges teachers of color face
- Panelist experiences with racism, micro-aggressions, etc.
- How to support students and colleagues of color in PK-12 classrooms
- Addressing the shortage of teachers of color

“Hearing about others’ challenges and obstacles with discrimination made me realize I wasn’t alone.”

Educators from Washington Local Schools: Melissa Hall, Felicia Singleton, Rhea Young, ILA, & Raquel Jones
Educators from Toledo Public Schools: Marian Saleh, Horizon Science Academy, & Edward McDaniel, Escuela SMART Academy

For the third year in a row, an Educators of Color Panel was held on the BGSU campus, in which local teachers shared their teaching experiences, discussed their viewpoints and answered questions from the audience about diversity and racial injustices that occur in the classroom.

Panelists included four current teachers from the Washington Local School district, which is partnering with NWO on the grant-funded Project EDUCATE (Educators of Diversity: Unified and Collaborative to Aspire Teacher Education), an educational model developed to increase and diversify the educator workforce. The teachers are also mentors to participating students within the grant project, which is in its third year. Two teachers from Toledo Public Schools also participated on the panel, adding their perspective from another large urban school district in northwest Ohio.

Alongside the BGSU community comprised of faculty and administrators, over 85 BGSU students attended, mostly Education majors, some of whom are currently student-teaching.

“As a person of color, I thought it was very insightful and helpful. More people need to be aware, and this definitely helps.”

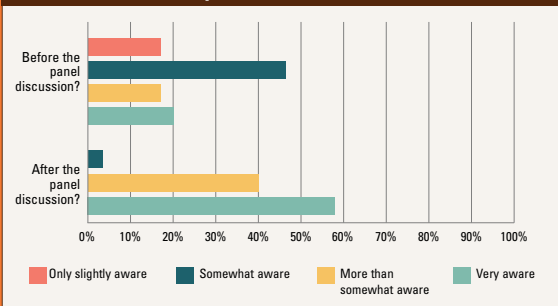
Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Educators of Color Panel Report

PARTICIPANTS FEEDBACK ABOUT THE PANEL DISCUSSION



How aware were you of People of Colors' experiences in schools

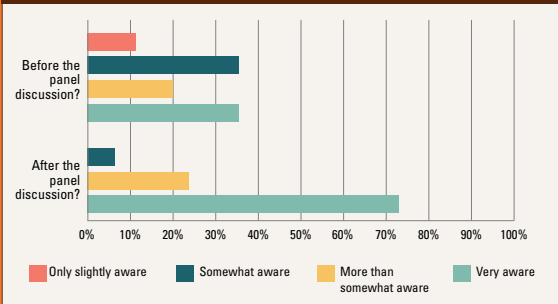


EVENT OVERALL RATING BY PARTICIPANTS

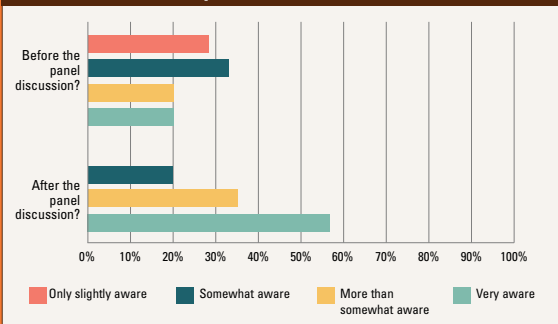
4.5 ★



How aware were you of the discrimination of People of Color in schools



How aware were you of ways to support People of Color in schools



“ Providing a safe space for students of color, establishing a classroom environment in which racism/discrimination is unacceptable.

“ ... I believe this topic to be of critical importance for not only teacher education students, but current teachers as well.

Project EDUCATE Report

Educators of Color Panel

The panel was sponsored by the College of Education and Human Development Teacher Education program and the Northwest Ohio Center for Excellence in STEM Education (NWO) at Bowling Green State University.

January 2024

HELD ON BGSU CAMPUS WITH 4 PANELISTS FROM PARTNER SCHOOL DISTRICT

Teachers shared teaching experiences & answered questions about diversity and racial injustices that occur in the classroom to audience of over 85 students, faculty and pre-service teachers.



Educators from Washington Local Schools: Melissa Hall, Felicia Singleton, Rhea Young, & Raquel Jones

Project EDUCATE Mentoring and Afterschool Club

- Recognizes student's leadership potential in middle school
- Mentors students with a formally developed Mentor Institute
- Students in **Teacher Professions** courses frequently interact with the middle school students
- Afterschool club organizes Student of Color Panel and various activities

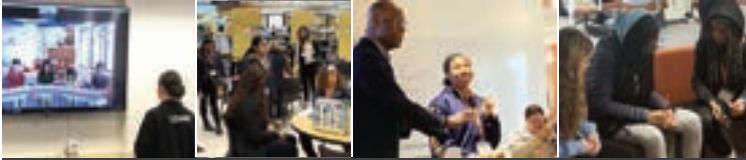


Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Report

Project EDUCATE Campus Experiences

To bring about awareness to the path of becoming an educator as well as educational career exploration, **Project EDUCATE** organizes Campus Experiences to expose participating 8th grade and high school students to the BGSU campus. Activities include a virtual simulation classroom activity in the Virtual Simulation Laboratory, Life Design session in the Life Design Lab, round table discussion with current BGSU graduate students in Education, pre-service education panels, and tours of the Classroom Technology Center, Curriculum Resource Center and Planetarium.



Project EDUCATE is a four-pillar program aimed to increase the recruitment and retention of students who are members of racially, culturally, and ethnically minoritized groups into the teaching profession. This is a partnership between Washington Local Schools (WLS), and Northwest Ohio Center for Excellence in STEM Education (NWO), housed in the BGSU College of Education and Human Development (EDHD).



PILLAR
01

6th - 8th grade Project EDUCATE Afterschool Club

Students explore the components of an education career

- Diverse role models and mentors in education
- Social emotional learning principles
- Creative, empathetic, student-centered pedagogy



PILLAR
02

9th - 12th grade Teaching Professions Program

Student explore becoming a life-changing teacher of color

- Explore teaching related careers through a social justice and equity lens
- Earn credits that transfer to higher education programs/certificates
- Field experiences
- Mentoring relationships
- College academic/career skills



PILLAR
03

Higher Education Preparing Diverse and Elite Future Educators

Students enter their pre-service teaching path

- Continue to higher education with a major in education
- College scholarships
- High-quality alternative certification programs
- Deliberate and positive support structures
- Paraprofessionals in their school district while completing degree



PILLAR
04

Professional Career Path

Students return to home district to assume a classroom position

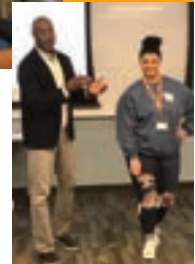
- Earn teacher licensure and preferential hiring in home district
- Teach for a minimum of 3-5 years as part of a "pay back"
- Mentor future participants
- Professional Learning Communities
- Encouraged to pursue graduate degrees in Education and Educational Leadership



Life Design

BGSU LIFE DESIGN COACH CO-TEACHING LIFE DESIGN COURSE AT PARTNER SCHOOL AND LEADING CAMPUS EXPERIENCES

- Comprehensive weekly Life Design Session to inspire 9th graders to consider Teaching a potential career path
- Sessions integrate Life Design mindsets and design thinking principles to give students a holistic understanding of the teaching profession
- Alignment with student's personal and professional goals
- Each session is structured to be engaging and interactive, incorporating a mix of presentations, group discussions, hands-on activities, and reflection exercises
- Students will learn how to use the design thinking process to evaluate opportunities in educational careers and develop a comprehensive success plan



Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Campus Experiences



March 26, 2024

**Jodie Tucker, Teaching Professions Instructor, Washington Local Schools
(42 Students)**

Arrival Instructions:

Bus Arrives at 9:30 am - drop students off in **Lot A** (Centrex Building).

Bus parking: Lots 13 near the football stadium.

Drivers can use this map: <https://tinyurl.com/29n8hbab>

Departure Instructions:


Bus departs at 1:30 p.m. from Lot A

	Time	Group 1 (21 Students)	Group 2 (21 Students)
Session 1	9:40-10:20	Education Panel Discussion BGSU Education Student Panelists Olscamp 117	Education Panel Discussion BGSU Education Student Panelists Olscamp 117
Session 2	10:30-11:10	Life Design Session Greg Dickerson Radbill Center-McLeod Hall	Lunch The Oaks Social Club
Session 3	11:15-11:55	Lunch The Oaks Social Club	Life Design Session Greg Dickerson Radbill Center-McLeod Hall
Session 4	12:00-12:30	EDHD Information Session Kaylani Othman Education 113	Mursion Classroom Simulation Education 213A
Session 5	12:40-1:10	Mursion Classroom Simulation Education 213A	EDHD Information Session Kaylani Othman Education 113
Session 6	1:15-1:30	Little Red Schoolhouse Tour	Little Red Schoolhouse Tour
	1:30	Dismiss	Dismiss



Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Campus Experiences




April 17, 2024

Felicia Singleton, Teaching Professions Instructor, Washington Local Schools
(50 Students)


Arrival Instructions:
Bus Arrives at 9:30 am - drop students off in **Lot H** (corner of Merry St. & N. College - Life Science Building)
Bus parking: Lots 13 near the football stadium.
Drivers can use this map: <https://tinyurl.com/29n8hbab>

Departure Instructions:
Bus departs at 1:30 p.m. from Lot A


	Time	Group 1 (25 Students)	Group 2 (25 Students)
Session 1	9:40-10:00	Education Panel Discussion BGSU Education Student Panelists Life Science 140	Education Panel Discussion BGSU Education Student Panelists Life Science 140
Session 2	10:05-10:30	Critical Reflection, Essential Feedback, & Strong Communication • Dr. Kristina LaVenia Life Science 140	Life Design Session Thad Long Radbill Center-McLeod Hall
Session 3	10:35-11:00	Life Design Session Thad Long Radbill Center-McLeod Hall	Critical Reflection, Essential Feedback, & Strong Communication • Dr. Kristina LaVenia Life Science 140
	11:10-11:50	Lunch The Oaks Social Club	Lunch The Oaks Social Club
Session 4	12:00-12:30	EDHD Information Session Kaylani Othman Education 307	Mursion Classroom Simulation Education 213A
Session 5	12:40-1:10	Mursion Classroom Simulation Education 213A	EDHD Information Session Kaylani Othman Education 307
Session 6	1:15-1:30	Little Red Schoolhouse Tour	Little Red Schoolhouse Tour
	1:30	Dismiss	Dismiss



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NWO
Northwest Ohio Center for Excellence in STEM Education



washington local schools
Individual attention. Infinite opportunities.

Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Campus Experiences




April 26, 2024

Rocki Jones – 15 Seventh Grade Students


Arrival Instructions:
Bus Arrives at 9:30 am - drop students off in **Lot A** (Centrex Building).
Bus parking: Lots 13 near the football stadium.
Drivers can use this map: <https://tinyurl.com/29n8hbab>

Departure Instructions:
Bus departs at 1:30 p.m. from Lot A


	Time	ACTIVITIES
Session 1	9:35 am-10:05 am	Critical Reflection, Essential Feedback, Strong Communication - Dr. Kristina LaVenja, Education Building 113
Session 2	10:15 am-11:00 am	Life Design Session - Thad Long, Radbill Center
Session 3	11:10 am-11:50 am	Lunch - Social House @ The Oaks
Session 4	12:00 pm-12:30 pm	Mursion Simulation Session - Education Bldg 213A
Session 5	12:40 pm-1:30 pm	Education Student Panel Discussion & Engaging Activity - Education Building 213A
	1:30 pm	Dismiss



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Individual attention. Infinite opportunities.

Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Kurt Russell Invite to Washington Local Schools



*You
are
Invited...*

...as Washington Local
Schools welcomes



2022 National Teacher of the Year
Kurt Russell

*Crafting Tomorrow: The Impactful Role
of Teachers in Shaping the Future.*

FEBRUARY 28TH, 2024
NIGHTINGALE AUDITORIUM
1:00 pm

*Sponsored by Project EDUCATE and The Northwest Ohio Center for Excellence in STEM Education
at BGSU's College of Education and Human Development*



Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Kurt Russell Invite to BGSU



*You
are
Invited...*

NWO and BGSU's College of Education
and Human Development welcomes



2022 National Teacher of the Year
Kurt Russell
The Call to Teach-Embracing the Journey

Mr. Russell will share his journey of becoming an educator. His experiences will highlight the challenges, the impact, and most importantly, the joys of teaching! This session is open to all students, faculty, and staff and will provide a motivational and inspirational message.

February 29, 2024
8:30am-9:30am
Olscamp Hall Rm 115


Light breakfast at 8am

*Sponsored by Project EDUCATE and The Northwest Ohio Center for Excellence in STEM Education
at BGSU's College of Education and Human Development*




Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Kurt Russell report for Washington Local Schools



KURT RUSSELL
2022
National
Teacher
of the Year





Kurt Russell, the 2022 Ohio and National Teacher of the Year from Oberlin, Ohio, was invited to visit Whitmer High School in Toledo, Ohio to deliver a presentation entitled, "Crafting Tomorrow: The Impactful Role of Teachers on Shaping the Future". Whitmer is part of the Washington Local School district which partners with Bowling Green State University and the Northwest Ohio Center for Excellence in STEM Education on "**Project EDUCATE**", (Educators of Diversity: Unified and Collaborative to Aspire Teacher Education), an educational model developed to increase and diversify the educator workforce.

Melissa Hall (Project EDUCATE Mentor) introduced Mr. Russell and during the assembly, he shared his journey of becoming an educator of color, highlighting the opportunities and challenges he experienced, along with the impact and joys of teaching. In addition to selected faculty and staff, the **over 400 attendees** included:

- ▶ Teaching Professions Students (9th-12th)
- ▶ Project EDUCATE Students (7th-8th) and Mentors
- ▶ Superintendent's Student Advisory Committee
- ▶ Panther Athletic Leaders
- ▶ Link Crew Members (HS students)
- ▶ Student Council Members (HS students)
- ▶ Career Tech Center Ambassadors (HS students)
- ▶ Humanities Classes (7th-8th)

Mr. Russell also visited the **Project EDUCATE afterschool club** to meet with participating Project EDUCATE students who are interested in teaching as a career, to further discuss his inspiring and challenging path to becoming an educator of color. During this informal time, students were encouraged to ask Mr. Russell questions to learn more about the opportunities of becoming a teacher and how to overcome the challenges all educators face. Project EDUCATE participating teachers and mentors also attended.



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Northwest Ohio Center for
Excellence in STEM Education

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Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Kurt Russell report for Washington Local Schools

According to the participants, attending Mr. Russell's presentation helped them understand and appreciate good teaching. Participants were asked if the presentation was helpful in five questions, and **90% agreed** with each one. Their responses are illustrated in the figure below.

Attending Mr. Russell's Presentation helped participants to...

Statement	Yes For Sure	Yes
See how teaching can positively shape students' lives	88%	12%
Understand what makes a good teacher	82%	18%
Feel inspired to be a good teacher	73%	27%
Understand the challenges of teaching	72%	28%
Feel confident that I can be a good teacher	58%	42%

“
His talk influenced me to make a good impact, to stay motivated because I have a purpose.”

“
I want to try and plunge myself into activities that would help with confidence after this, because his talk makes me believe that I can achieve great things if I put my mind to it.”

THE IMPACT ON WASHINGTON LOCAL SCHOOL STUDENTS

Generally, it seemed that many WLS students came away from the presentation with a stronger focus on others, including teachers and other students at their school. Some students wrote:

“It made me recognize how important other people's stories and made me want to learn more of the people around me.”

“Currently I'm trying to work on empathy towards others. I would say that this presentation has given me more motivation to do so.”


“They had encouraged me to uplift others and to also get and help others make them feel important.”

“
I want to be more passionate about what I'm doing for my education and work hard for my future.”

“
It opened my eyes to realize that you can do it and you have to work on it to get it and that it doesn't just come to you.”

Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Kurt Russell report for BGSU




KURT RUSSELL
2022
National
Teacher
of the Year

BGSU A PUBLIC UNIVERSITY
FOR THE PUBLIC GOOD.

Mr. Russell shared his journey of becoming an educator, and he highlighted his experiences along with the challenges, the impact, and most importantly, the joys of teaching. His presentation was open to all students, faculty, and staff at BGSU, and his dedication to empowering students, promoting diversity, and fostering critical thinking was exemplified during his talk.

"It is vital to bring an inspiring teacher such as Mr. Russell to our campus as well as our partner school district, as he exemplifies passion for his profession, which we are hopeful will encourage more students to enter the education field, as there is a critical shortage of teachers, and especially teachers of color, in Ohio," said Dr. Emilio Duran, the director of NWO and professor in the School of Inclusive Teacher Education.

Kurt Russell, the 2022 Ohio and National Teacher of the Year from Oberlin, Ohio, was invited to Bowling Green State University to deliver a presentation entitled, "The call to teach, embracing the journey", as part of "**Project EDUCATE**", (Educators of Diversity: Unified and Collaborative to Aspire Teacher Education), an educational model developed to increase and diversify the educator workforce.



NWO
Northwest Ohio Center for
Excellence in STEM Education

BGSU College of
Education and
Human Development
BOWLING GREEN STATE UNIVERSITY

Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Kurt Russell report for BGSU

Participants' Thoughts about the Qualities of a Teacher

Participants were asked to state the important qualities a teacher should have in order to positively impact their students. Dozens of qualities were mentioned, with the most common shown below.

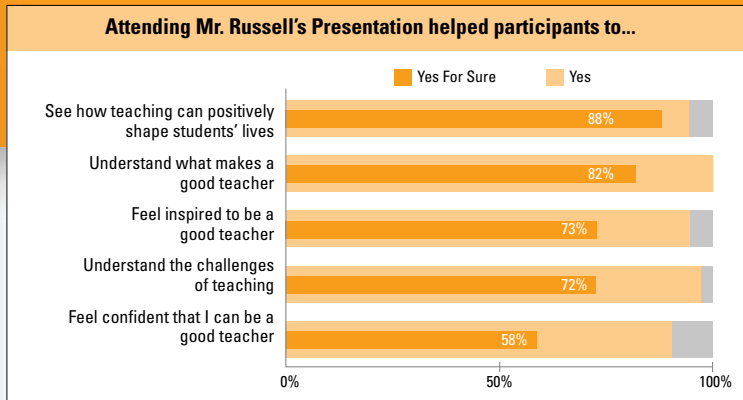
Quality	% of Participants Who Mentioned It
Inclusive	17%
Kind/Caring	15%
Understanding	13%
Empathetic	11%
Positive	10%
Good Listener	9%
Empowering	8%
Relatable	8%
Energetic	5%
Accepting	5%
Passionate	5%

“

It helped me feel even more confident about wanting to teach.



According to the participants, attending Mr. Russell's presentation helped them understand and appreciate good teaching. Participants were asked if the presentation was helpful in five questions, and **90% agreed** with each one. Their responses are illustrated in the figure below.



Vincent Lanzerot, a student in the Intro to Teaching course introduced Mr. Russell to a group of approximately 100 BGSU students who attended, and most, if not all were Education. When answering the question, *"How did Mr. Russell's talk influence your educational journey,"* some of the BGSU students mentioned feeling affirmed in their choice to become teachers. Another theme that emerged from prospective teachers was *"finding their why,"* which was a recurrent point during Mr. Russell's presentations. About 10% of participants identified that point as the most memorable part of the presentation, and many prospective students mentioned how it influenced their educational journey. Some of the BGSU students wrote:

"I need to be resilient and teach with passion and my why. It's all about my why I wanna be a teacher that I will take with me."

"He repeatedly emphasized the importance of having a why. I think that I need to continue constructing my why."

"I want to emphasize bringing my energy and my "why" every single day into the Classroom."

“

It inspired me! I have thought about if this major is right for me and every time I am presented with the opportunity to listen to a knowledgeable teacher I find my inspiration again! I definitely will start remembering my why more often!

Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Recognition



BOWLING GREEN STATE UNIVERSITY

BGSU. News

Academics Admissions About Athletics Alumni Libraries Research Students International News

Life Design at BGSU broadens impact through new collaboration with nationally-ranked teacher education program

BGSU News Online Media Newsroom

BOWLING GREEN, Ohio – Committed to redefining student success, Life Design at Bowling Green State University continues to build momentum and broaden its impact across the learning community through new, innovative partnerships.

Life Design at BGSU and the College of Education and Human Development recently collaborated on a new course to empower future educators with design thinking skills to bolster their professional success.



OHIO Xdeans compact
AN EXPECTED CHANGE

THE CONNECTOR

Q2: October-December 2023

NEWS & UPDATES

Incentive Grant Spotlight
Project EDUCATE
Bowling Green State University, Northwest Ohio Center for Excellence in STEM Education & Washington Local Schools

Appendix F: Project EDUCATE Reports, Advertising, & Recognition cont.

Project EDUCATE Recognition

BGSU News

Empowering educators to empower students: Teacher of the Year Kurt Russell brings classroom insights to future teachers at BGSU!

By Victoria Dugger

Students hear from the best in their field during an inspirational experience by the nationally-recognized educator, sponsored by Project EDUCATE and NWE at the College of Education and Human Development.

Recent Ohio's largest province of teacher education graduates, BGSU has long been regarded for the caliber of its education graduates, and on Thursday, future educators of the state of Ohio took in their best – 2022 National Teacher of the Year Kurt Russell.

Russell, a high school biology teacher in Okemah, Okla., was named as the 2022 National Teacher of the Year by the Council of Chief State School Officers (CCSSO). His commitment to creating an inclusive environment where every student feels welcome, regardless of their race, background, or ability, has earned him recognition as a passionate advocate for education and more importantly, respect for the education of hundreds of students he has taught.

Russell shared his experience with BGSU students, answering the burning questions and the corner of public education as well as encouraging them to lead a student-centered focus on their future.

"There is untapped potential in public education because there's untapped potential in you," Russell told students. "You all have made a choice to step up and to develop your mind. There is nothing like being in a classroom because it's the only profession that could change the trajectory of someone's life."

Like many who choose to become educators, Russell was influenced by impactful teachers he encountered during his own education. He reflected on how teachers who shaped both his education and his outlook on teaching, he recalled the depression his kindergarten teacher, Mrs. Patricia Sims had on him in 1976, as she made a bet to the class about a young Martin Luther King Jr. during which Russell saw someone who looked like him with every sign of struggle.

"Name'd yourself? Martin Luther King Jr. was assassinated in 1968, so this has been 50 years after his assassination. I'd see one of the same figures. We did not have a holiday named after Martin Luther King Jr.," Russell said. "But the teacher that I had always was emotional about the death. She said 'I had students of color in my classroom, and I had to be intentional to include them in the curriculum.'"

The first teacher that he mentioned gave Russell encouragement when he was a student and his eighth grade math teacher, Mrs. Thomas, at Okemah Public School. To earn the first prize he had just someone who looked like him in a room of the classroom. Russell said he had read case from Thomas, who advocated for inclusion with common sense, connecting with and showing interest in each of her students.

"Rights and obligations. That's our responsibility. Every single student that walks into your classroom needs to see an image of themselves. Every teacher that we teach need to be inclusive," Russell said to BGSU education students. "What has been working before this world including because this is inclusive, and I had to be intentional to include the different backgrounds. What has been emotional about the work and what has that not have to do it in 1976 kindergarten, you didn't have to do that."

"What Mr. Thomas, what I can tell me was how this gentleman stepped up and how he reached every single student only walked through the door each and every day. Mr. Thomas looked like me and gave me the message of 'the possibility that' could become a teacher. That is possibility through representation!"

Russell's visit was sponsored by Project EDUCATE, a collaboration of University of Bowling Green's College of Education and Human Development and the College of Education and Human Development. The NWE also sponsors the University of Ohio Teacher of the Year, which is a national award that recognizes and celebrates teachers who have shown exceptional teaching experiences, addressed issues and challenges teachers face every day, and addressed how to support students and colleagues of color in classrooms, among other topics.

BGSU partners with the Washington State School District on the great leader Project EDUCATE, an education model designed to increase and diversify the classroom workforce. Russell also spoke during an assembly with Washington State's former education secretary and BGSU's first Black female professor.

"It is exciting being an inspiring teacher such as Mr. Russell to see someone who was a former school teacher, as he was the person for his profession, what we are hopeful will encourage more students to enter the education field, as there is a critical shortage of teachers and inspiring teachers of color in Ohio," said Dr. David Smith, the director of NWE and professor in the College of Education. "The work of Project EDUCATE is guiding education groups of leaders and bright graduate students to advance in education through various other services, internships to the university's various and diverse, which include Life Design, the Virtual Education Laboratory, our various education faculty, and more importantly, our students."

Beyond the classroom, Russell serves as head coach of the Okemah High School varsity basketball team, giving his another avenue to relate to and positively influence students. One of his former students and basketball players, Tegan Greenaway, is a BGSU student studying in Fulton and he said the visit was the opportunity for Russell to visit in person.

"I just knew that I had to come and support him at BGSU. And you know, I'm excited for everything that he teaches and research. He was my teacher and he really inspired me."

Russell is dedicated to empowering students, promoting diversity, and fostering critical thinking, especially the quality of an emerging education and to support BGSU students to be leaders and remember their passion.

"You are doing a great job at Bowling Green University to better yourself as an educator. The passion you have – like that with you. The one thing that you cannot neglect is regard to your staff, to the person and the way that you only teach and working hard," he said. "You should have to reflect upon your why that why has to be your faith that you only see in your foundation. Your why represented. It's your purpose. It's your fighting spirit and we are a fighting spirit as educators."

About the College of Education and Human Development

As one of the largest providers of teacher education graduates in Ohio, BGSU has been leading impactful education since re-founding as a teaching college in 1953. Bowling Green State University ensures its pre-service teachers are prepared to provide the best education possible through formal and experiential experiences in K-12 classrooms.

The School of Inclusive Teacher Education in the BGSU College of Education and Human Development uses cutting-edge technology and research-based practices to prepare students to meet the needs of all learners.

The University's teacher candidates log more than 100 hours of field placement experience before student teaching, far exceeding the state's minimum requirement of 500 hours.

BGSU is also the only university in Ohio using an award-winning platform called *Teacher* leading in and human-centered that also includes online teaching skills in a virtual classroom environment, providing just another level of preparation before entering the classroom.

BGSU WEEKLY

Thursday, Feb. 22, 2024

Save the Date: A Session with National Teacher of the Year Kurt Russell

Join the Northwest Ohio Center of Excellence in STEM Education at the College of Education and Human Development in welcoming Kurt Russell, the 2022-23 National and Ohio Teacher of the Year. This session is open to all students, faculty and staff on Thursday, Feb. 29 from 8:30-9:30 a.m. in Olscamp Hall Room 115.

APPENDIX G: GP-EXTRA: (GEOSCIENCE THROUGH EDUCATION RESEARCH) ADVERTISING

GP-EXTRA: (Geoscience through Education Research) Recruitment Email



FREE PLACE-BASED SCIENCE/STEM EDUCATION OPPORTUNITY

GP-EXTRA

For Your 6th-12th Grade Students

Attention 6th-12th Grade Science/STEM Teachers and Administrators:

- Are you looking for engaging scientific activities for your students?
- Would you like to get your students involved in an authentic research project on local environmental health issues in Toledo?
- Would you like to increase your students' knowledge of scientific fields and careers?

Then let us help!

BGSU's Geology department in conjunction with NWO STEM is proud to offer **GP-EXTRA, a FREE place-based science opportunity to all schools in Northwest Ohio**. This three-session project focuses on lead contamination in our community and gives students authentic, hands-on opportunities in science. Students learn about lead-based hazards, collect samples from their homes, analyze them, and apply knowledge to real-world applications.

Lead contamination has recently made headlines with Toledo's Lead Safe Ordinance. Many property owners and renters don't know the extent of lead contamination in their properties, nor the risks lead poses to humans. This project educates students to help make their community a safer place.

This is GP-EXTRA's second year, and we are looking to reach even more students than before! **100% of teachers we worked with last year reported their student's problem-solving skills and critical-thinking skills increased** because of this program, and students reported an increase in knowledge, interest, and attitudes towards science! In addition, 100% of teachers surveyed at the end of last year would recommend GP-EXTRA to others! Sample activities, testimonials, and further information can be found on our [website](#).

We are looking to recruit new teachers to work with and will begin scheduling sessions soon! If you're interested, please fill out this brief [Google form](#), or email Lauren Huhn, at lhuhn@bgsu.edu. Please share this opportunity with your fellow teachers and any other educators who may be interested!

Ohio Science Standards Applicable to GP-EXTRA

Biological Science: B.1.3 Ecosystems, Chemistry: CPM.1 Atomic Structure & CPM.3 Chemical Bonding, Physical Science: PSM.2 Atoms & PSM.4 Bonding and Compounds, Environmental Science: ENVOR.4 Soil and Land & ENVOR.5 Wildlife and Wilderness, Physical Science: PSM.1 Energy Resources & PSM.6 Soil and Sediment, Human Anatomy and Physiology: AP.1 Blood, Grade 6-8 ESS.2 Soil is an unconsolidated mineral-based material, colored matter and weathered rock & ESS.3 Plants, animals and soils have common and practical uses, Grade 7-8 ESS.1 Hydrological cycle & ESS.2 Organisms within biomes depend on biotic and abiotic factors, Grade 8 ESS.4 Evidence of dynamic changes of Earth's surface through time is found in the geologic record

Are you interested? Then please contact us for more details at:
 John Farver, Professor, farver@bgsu.edu, (419) 372-7203
 Jenna Pollock, Program Manager, jpolloc@bgsu.edu, (419) 372-2730
 Lauren Huhn, Graduate Assistant, lhuhn@bgsu.edu

For more information check out the website: <https://www.bgsu.edu/nwo/current-grant-projects/GP-EXTRA.html>

This project is funded through the National Science Foundation and Bowling Green State University



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APPENDIX H: WASHINGTON LOCAL SCHOOLS STEM CURRICULUM CAMPUS EXPERIENCE AGENDAS

Washington Local Schools STEM Curriculum Campus Experience Agendas



Jefferson Junior High 8th Grade Advanced Science BGSU Campus Experience

February 6, 2024 • 9:30am-1:30pm

SCHEDULE FOR THE DAY

TIME BLOCK ONE	TIME BLOCK TWO
<p>9:40-10:30 - Group A (40 students) Marine Lab Tour, Scavenger Hunt, Student Panel Discussion - Life Science Building Rm 209 Facilitators: Dr. Matthew Partin, <i>Teaching Professor and Marine Lab Curator</i>, and Marine Biology Students/ Lab Assistants</p> <p>9:40-10:30 - Group B (40 students) Planetarium Show - Physical Sciences Building Facilitator: Dr. Kate Dellenbush, <i>Teaching Professor, Department of Physics & Astronomy</i></p>	<p>10:40-11:30 - Group B (40 students) Marine Lab Tour, Scavenger Hunt, Student Panel Discussion - Life Science Building Rm 209 Facilitators: Dr. Matthew Partin, <i>Teaching Professor and Marine Lab Curator</i>, and Marine Biology Students/ Lab Assistants</p> <p>10:40-11:30 - Group A (40 students) Planetarium Show - Physical Sciences Building Facilitator: Dr. Kate Dellenbush, <i>Teaching Professor, Department of Physics & Astronomy</i></p>
TIME BLOCK THREE	TIME BLOCK FOUR
<p>11:40-12:30 - Group A (40 students) LUNCH - The Oaks Dining Hall</p> <p>11:40-12:30 - Group B1 (20 students) Fossil Preservation and Paleocology - Overman Hall Rm 065 Facilitator: Ina Terry, <i>Adjunct Instructor, School of Earth, Environment and Society</i> & Dr. John Farver, <i>Professor, Geology</i></p> <p>11:40-12:30 - Group B2 (20 students) Fossil Preservation and Paleocology - Overman Hall Rm 096 Facilitator: Kaylee Walty, <i>Graduate Assistant, School of Earth, Environment and Society</i> and Lauren Huhn, <i>Graduate Research Assistant, Geology</i></p>	<p>12:40-1:30 - Group B (40 students) LUNCH - The Oaks Dining Hall</p> <p>12:40-1:30 - Group A1 (20 students) Fossil Preservation and Paleocology - Overman Hall Rm 065 Facilitator: Ina Terry, <i>Adjunct Instructor, School of Earth, Environment and Society</i> & Dr. John Farver, <i>Professor, Geology</i></p> <p>12:40-1:30 - Group A2 (20 students) Fossil Preservation and Paleocology - Overman Hall Rm 096 Facilitator: Kaylee Walty, <i>Graduate Assistant, School of Earth, Environment and Society</i> and Lauren Huhn, <i>Graduate Research Assistant, Geology</i></p>

For WLS Busses:

- Pull into Lot H (corner of Merry St. & N. College - Life Science Building) to drop students off
- Park in Lot 20 or 13 by the Stroh Center for the day (no permit needed)
- Jenna will meet WLS students in Lot H where the buses drop off and guide them to the first activity station

IMPORTANT NOTES:

- Please dress for the cold weather. We will be walking outside in between sessions.
- You are welcome to bring a small snack with you due to the later lunch schedule.









Appendix H: Washington Local Schools STEM Curriculum Campus Experience Agendas cont.

Washington Local Schools STEM Curriculum Campus Experience Agendas



Jefferson Junior High 8th Grade Advanced Science BGSU Campus Experience #4

March 12, 2024 • 9:30am-1:30pm

SCHEDULE FOR THE DAY

COLLEGE OF TECHNOLOGY ARCHITECTURE AND APPLIED ENGINEERING PRESENTATION
Technology Bldg. Room 127 (All Students)

Facilitator: Dr. MD Sarder, Professor/Director, School of Engineering
<https://www.bgsu.edu/technology-architecture-and-applied-engineering.html#>
9:40 am -10:00 am

COLLEGE OF TECHNOLOGY LAB TOURS - Technology Building (3 Groups-27 Students Each)

10:10 am -10:30 am	10:30 am - 10:50 am	10:50 am - 11:10 am
Mechanical/Manufacturing Lab TB 124 (Group 1)	Mechanical/Manufacturing Lab TB 124 (Group 3)	Mechanical/Manufacturing Lab TB 124 (Group 2)
Electronics/Computer Engineering Lab TB 120 (Group 2)	Electronics/Computer Engineering Lab TB 120 (Group 1)	Electronics/Computer Engineering Lab TB 120 (Group 3)
Robotics Lab - TB 123 (Group 3)	Robotics Lab - TB 123 (Group 2)	Robotics Lab - TB 123 (Group 1)

ADMISSIONS SESSION/UNIVERSITY OVERVIEW - Overman Hall Room 123 (All Students)

Facilitator: Caitlin Shortridge, Coordinator of Recruitment and Outreach, STEM Programs
<https://www.bgsu.edu/admissions.html>
11:20 am - 11:35 am

HERPETARIUM SESSION + LUNCH - Life Science Building/The Oaks (2 Groups - 40 Students Each)

Facilitator: Dr. Mason Murphy, Assistant Professor/Director, Herpetarium
<https://www.bgsu.edu/arts-and-sciences/biological-sciences/facilities-and-resources/bgsu-herpetarium.html>

11:40 am - 12:30 pm	12:40 pm 1:30 pm
Herpetarium - Life Science 115 (Group 1)	Herpetarium - Life Science 115 (Group 2)
Lunch - The Oaks Social Club (Group 2)	Lunch - The Oaks Social Club (Group 1)

For WLS Busses:

- Pull into Lot R on Merry St. (Technology Building) to drop students off <https://www.bgsu.edu/content/dam/BGSU/parking-services/documents/Campus-Parking-Map-2023-24.pdf>
- Park in Lot 13 by the Stroh Center for the day (no permit needed)
- Jenna will meet WLS students in Lot R where the buses drop off and guide them to the first activity station**

IMPORTANT NOTES:

- Please dress for the cold weather. We will be walking outside in between sessions.
- You are welcome to bring a small snack with you due to the later lunch schedule.



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BGSU | College of Education and Human Development
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washington local schools
individual attention. infinite opportunities.

Appendix H: Washington Local Schools STEM Curriculum Campus Experience Agendas cont.

Washington Local Schools STEM Curriculum Campus Experience Agendas



Jefferson Junior High 8th Grade Advanced Science BGSU Campus Experience - Earth Science October 10, 2023 • 9:30am-1:30pm

IMPORTANT NOTES:

- We will be going outside - please dress for the weather and wear comfortable shoes for walking.
- Payment for lunch can be made with a credit card or a check made out to 'BGSU Dining'
- Students will rotate around to **three activity stations** and have **lunch** in between the second and third stations at The Oaks.

Activity Station Times

- 9:40-10:30
- 10:40-11:30
- 11:40-12:30 - LUNCH AT THE OAKS (all students)
- 12:40-1:30

Activity Station/Location/Facilitator

- A. **Tech Pond Field Trip-Environment Changes Over Time** (065 Overman Hall) *Dr. John Farver, Geology Professor & Madi Rex, Undergraduate Research Assistant*
- B. **Seismic Refraction** (140 McLeod Hall) *Lauren Huhn, Graduate Research Assistant*
- C. **Earthquake Machine** (096 Overman Hall) *Tricia Cox, Undergraduate Research Assistant*

For WLS Busses:

Pull into Lot R on Merry (Technology Building) to drop students off

Park in Lot 20 or 13 by the Stroh Center for the day (**no permit needed**)

Jenna will meet WLS students in Lot R where the buses drop off and guide them to the first activity station

Appendix H: Washington Local Schools STEM Curriculum Campus Experience Agendas cont.

Washington Local Schools STEM Curriculum Campus Experience Agendas



Jefferson Junior High 8th Grade Advanced Science BGSU Campus Experience - Earth Science November 21, 2023 • 9:30am-1:30pm

IMPORTANT NOTES:

- We will be going outside - please dress for the weather and wear comfortable shoes for walking.
- Payment for lunch can be made with a credit card or a check made out to 'BGSU Dining'
- Students will rotate around to **three activity stations** and have **lunch** in between the second and third stations at The Oaks.

Activity Station Times

- 9:40-10:30
- 10:40-11:30
- 11:40-12:30 - LUNCH AT THE OAKS (all students)
- 12:40-1:30

Activity Station/Location/Facilitator

- A. **Core Ideas to Understanding our Past** (140 Life Science) *Lauren Huhn, Graduate Research Assistant*
- B. **Geologic Structure Modeling** (065 Overman) *Madi Rex, Undergraduate Research Assistant and Kat Kieffer, Graduate Research Assistant*
- C. **Glacier and Melt** (140 McLeod) *Dr. John Farver, Geology Professor*

For WLS Busses:

Pull into Lot R on Merry (Technology Building) to drop students off

Park in Lot 20 or 13 by the Stroh Center for the day (**no permit needed**)

Jenna will meet WLS students in Lot R where the buses drop off and guide them to the first activity station

APPENDIX I: TOTAL SOLAR ECLIPSE REPORT

Total Solar Eclipse Report

Total Solar Eclipse

April 8th
2024

On April 8, 2024, a total solar eclipse crossed the United States from coast to coast, and Bowling Green, Ohio was in the path of totality. As the moon passed directly between the Earth and the sun, completely covering the sun and casting its shadow onto the surface of the Earth, BGSU had one of the best seats in the house!

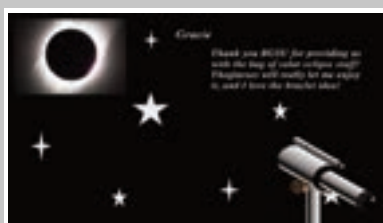
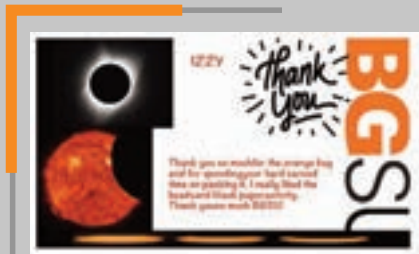
Leading up to this once-in-a-lifetime event, Northwest Ohio Center for Excellence in STEM Education (NWO) was involved in some of the pre-planning for the campus event with our partners, Dr. Kate Dellenbusch and Dr. Andrew Layden from BGSU's Physics and Astronomy Department. As we brainstormed and made connections to local school districts, one area that stood out where our center felt we could make an impact was professional learning opportunities for educators as well as hands-on materials for students.



Appendix I: Total Solar Eclipse Report cont.

Total Solar Eclipse Report

The activity bag contained Solar Eclipse Glasses and three engaging activities in addition to a brand new “Sun, Moon & Shadows” Ultimate Guide and Activity Companion book created and provided by WBGU-PBS. Students, teachers and families were so excited to receive these bags and use them the day of the eclipse! NWO received many **thank you notes** from the students.



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The NWO team assisted in promoting the BGSU 11-session Eclipse Speaker Series as a professional learning series to our network of educators. We were also able to connect Dr. Dellenbusch with some local schools where she presented to students/staff about the Total Solar Eclipse.

One school partner was Washington Local Schools which NWO has been working with for several years now. This year's target grades are 5th and 8th for professional learning and programming in STEM and Science content.

Dr. Dellenbusch participated in one of the 5th grade teacher PD content days to address the basics of eclipses and why we see them. She provided demonstrations of a few scale models of the Sun, Earth, and Moon systems and how the sizes and distances are important for understanding eclipses. Teachers constructed pinhole viewers from cereal boxes and learned safety protocols for wearing the special eclipse sunglasses. At the conclusion of the PD session, teachers received all materials and instructions for implementing the activities and demonstrations in their own classrooms.

The NWO team also enhanced WLS Solar Eclipse content by assembling and **delivering approximately 1200 "Solar Eclipse 2 Go"** activity bags to all 5th and 8th grade students, teachers, and staff to take home and do with their families during the Solar Eclipse (since there was no school that day).



APPENDIX J: NWO COSMOS TEAM COLLABORATIVE ADVERTISING

NWO COSMOS Team Collaborative Advertising



WE CORDIALLY INVITE YOU TO JOIN US FOR THE NWO/COSMOS COLLABORATIVE

The Northwest Ohio Center for Excellence in **STEM** Education/COSMOS is seeking *enthusiastic members* from the BGSU community to participate in a new round of the **COSMOS COLLABORATIVE**.

The goal of this supportive group is to collaborate with fellow BGSU faculty, administration, and staff to champion **STEM initiatives** (research and educational) in order to better serve our BGSU community, increase the public good, and *advance STEM Education for all ages*.

We will do this through discussions and sharing of our research interests, **STEM** initiatives, and effective educational methods, along with strategizing ways to collaborate among departments to increase the rigor of our grant submissions, our classrooms, and our conversations.

Oct. 11th meeting location is 113 Education Building

- 11:30 a.m.-12:30 p.m.
- Lunch will be provided
- Please RSVP at <https://tinyurl.com/5n8h8bb7>

NWO/COSMOS Mission statement: www.bgsu.edu/nwo/about

Mark your calendars now for the 2023-24 academic year.

- Oct. 11, 2023
- Nov. 30, 2023
- Feb. 27, 2024
- April 11, 2024




Northwest Ohio Center for Excellence in STEM Education

BGSU College of Education and Human Development
BOWLING GREEN STATE UNIVERSITY

APPENDIX K: NWO E-NEWSLETTERS SAMPLE

NWO e-Newsletters Sample

Advancing science, technology, engineering, and mathematics education for people of all ages.




NWO
Network of Women in STEM

BGSU
Buckeye State University
Buckeye State University
Buckeye State University

August 2023

What's happening at NWO?

Presentation Proposals are now being accepted for the 40th Annual Women in STEM program at BGSU!



We invite you to facilitate a hands-on session (45 minutes) for a group of 15-20 students to highlight a STEM topic and/or career in order to instill awareness, excitement, and passion for STEM disciplines!

The goal of the Women in STEM program at BGSU is to provide a rewarding experience for 6th - 8th-grade girls that connects STEM education to the real world and sparks an interest in pursuing STEM majors in high school and beyond and ultimately STEM careers.

Women in STEM provides young women with a positive experience at BGSU and offers them a variety of engaging hands-on activities that allows them the opportunity to learn and interact with a wide variety of successful STEM role models.

The day will begin with interactive keynote activities for the whole group, followed by breakout sessions that provide hands-on, fun-filled, critical thinking/learning activities. Women in STEM will help young women recognize the wide array of options available in STEM fields, inspiring them to take classes in the STEM fields throughout their educational careers.

There will be groups of approximately 15 -20 girls with adult supervision in each break-out session. Sessions should include innovative and creative hands-on activities that are fun-filled and engaging. We would like to foster a collaborative growth-minded atmosphere in the breakout sessions that gives students opportunities to interact with one another and YOU as a STEM academic/career role model.

We rely on the support of our presenters and volunteers like you in order to continue to provide this unique experience for this age group. We are thrilled to host the 40th annual Women in STEM program at BGSU and look forward to your participation! We provide classroom and/or lab space, AV equipment, and support.

The deadline to register is October 6th, 2023.
Please contact: nwo@bgsu.edu with any questions.

Registration link:
https://forms.gle/1FALeSL8v8DyEN_hbGsuOsmE1Mh5e8tGHTrQX0WUu-XfXZGjv88Q/viewform

All who wish to attend Women in STEM are welcome regardless of their gender.

K-16 STEM in the NEWS

Ohio STEM Learning Network announces Learning Blade Offering



Great tools can help dedicated teachers accomplish even more with their students. That's why the Ohio STEM Learning Network is proud to offer access to Learning Blade to middle schools for free throughout the 2023-2024 school year. This program is funded by the State of Ohio's generous support for the network and STEM programming in our state.

This supplemental curriculum provides interactive and engaging lessons on various STEM topics. Designed for students in grades 5-9, Learning Blade can help teachers foster critical thinking, problem-solving, and understanding of careers.

Resources in Learning Blade are organized around "Missions" covering topics including advanced manufacturing, renewable energy, cybersecurity, and much more. In total, Ohio teachers can choose from more than 400 lessons, helping connect lessons to real-world applications in careers.

Missions include:

- Car manufacturing
- Dolphin rescue
- Flu outbreak
- Hack attack
- Rescue robot

Each Mission includes interactive online lessons for students, lesson plans for teachers, and take-home activities. These resources have been aligned to [Ohio's Learning Standards](#) for grades 5-9 in Math, English Language Arts, Science, and Technology as well as applicable standards from the [Connecticut Science Teachers Association](#). Access to Learning Blade is provided, for free, for Ohio educators for the 2023-2024 school year. Teachers can integrate Learning Blade as a supplemental resource connecting learning to in-demand STEM careers:

1. Administrators, teachers, and after-school educators can sign up at www.learninblade.com/OH (You must be a staff or faculty member of educational organization to request an account.)
2. You will be asked to provide your district/organization email address to receive your information.
3. An invitation email will be sent to the email provided with credentials to access the platform.

Key features

- Free access for Ohio educators
- 400+ lessons connecting to high demand careers
- A toolbox of STEM resources including online interactive lessons for students, lesson plans for teachers, and take-home activities for families
- Compatible with Clever and Schoology (school single sign-on systems)
- Culturally sensitive and user friendly
- Aligned to [Ohio's Learning Standards](#) for grades 5-9 in Math, English Language Arts, Science, and Technology as well as applicable standards from the [Connecticut Science Teachers Association](#)
- 20 hour "Introduction to Coding" course outlines early computer science concepts with text-based/block-based coding
- Schools that complete 5,000 online lessons will win a [Tello Drone](#)

Need help? For problems signing up, contact info@learninblade.com. For tech support, contact gsupport@learninblade.com.

Community STEM in the NEWS

Win the grant: Tips for Ohio teachers

From Kelly Gaier Evans, Director of the Ohio STEM Learning Network

Grants can be a crucial source of funding to try something new. Thanks to the generous support of [Battelle](#), the Ohio STEM Learning Network will fund a [third round of grants](#) to support STEM learning in classrooms across Ohio. Teachers or administrators working in public district schools, public charter schools, and public independent STEM schools can apply by September 5 for a \$2,500-\$5,000 grant to further STEM learning. Completing the grant application should take about 60 minutes.

The goal of the grant program is to foster the creation of new, sustainable STEM education programming in classrooms by investing directly in our K-12 teachers and administrators. Thanks to philanthropic funding from [Battelle](#), educators can now apply through the Ohio STEM Learning Network STEM Classroom Grant Program for up to \$5,000.

Kelly Gaier Evans, Director of the Ohio STEM Learning Network stated, "When I wrote about this opportunity last year, I explored [common themes from successful grant applications](#). This year, I'm going to shift my focus to essential lessons learned when submitting any grant, including this year's Ohio STEM Learning Network [STEM Classroom Grants](#). Whether you're a seasoned grant writer or a novice, these tips will help increase your chances of securing funding for your STEM education endeavors."

[Read Kelly's four tips for winning more grants](#)



STEM Opportunities

Ohio STEM Learning Network STEM Classroom Grants



[OSLN STEM Classroom Grant Program](#)

The Ohio STEM Learning Network is pleased to announce a new round of funding for STEM in classrooms across Ohio. The goal of the grant program is to foster the creation of new, sustainable STEM education programming in classrooms by investing directly in our K-12 teachers and administrators.

Thanks to philanthropic funding from [Battelle](#), educators can now apply through the Ohio STEM Learning Network STEM Classroom Grant Program for up to \$5,000. Public schools, charter schools, and independent STEM schools are eligible. [Apply here by September 5, 2023](#).

GP-EXTRA Attention 6th-12th Grade Science/STEM Teachers and Administrators:



- Are you looking for engaging scientific activities for your students?
- Would you like to get your students involved in an authentic research project on local environmental health issues in Toledo?
- Would you like to increase your students' knowledge of scientific fields and careers?

BGSU's Geology department in conjunction with NWO STEM is proud to offer **GP-EXTRA**, a **FREE place-based science opportunity to all schools in Northwest Ohio**. This three-session project focuses on lead contamination in our community and gives students authentic, hands-on opportunities in science. Students learn about lead-based hazards, collect samples from their homes, analyze them, and apply knowledge to real-world applications.

This is GP-EXTRA's second year, and we are looking to reach even more students than before! **100% of teachers we worked with last year reported their student's problem-solving skills and critical-thinking skills increased** because of this program, and students reported an increase in knowledge, interest, and attitudes towards science! In addition, 100% of teachers surveyed at the end of last year would recommend GP-EXTRA to others! Sample activities, testimonials, and further information can be found on our [website](#).

Teen Science Café Moonshot Leader

Do you serve teens (12-18) underrepresented in STEM careers?



Do you believe teens should have access to engineering programming and role models outside of school? Do you believe teens should have access to engineering programming and role models outside of school? Bring Teen Science Cafés to teens ages 12-18 in your community. Support 20 or more teens throughout the 2023-2024 Teen Science Café (TSC) program year and help them become Teen Leaders and innovators in their community.

INFOhio SEEKING PILOT DISTRICTS FOR GOLEARN, OHIO'S COLLABORATIVE COURSE CATALOG



GoLearn, Ohio's Collaborative Course Catalog, is in development and will be released for pilot participation in September 2023. INFOhio has partnered with [G2i](#)—based in Dublin, Ohio—on the development of the platform with input from INFOhio's GoLearn user group. GoLearn will give Ohio districts the ability to offer open seats in their courses to students from other schools and districts across the state via distance learning.

<https://www.infohio.org/ohio-stem-beekeeping-pilot-districts-for-golearn-ohio-collaborative-course-catalog>

NASA STEM materials to support STEM curriculum



Search hundreds of resources by subject, grade level, type and keyword at <https://www.nasa.gov/education/materials>.

Girls Who Code

Girls Who Code is providing more free and flexible computer science resources for our community!



Whether you're looking for last minute summer programming or planning for the school year ahead, Girls Who Code has great opportunities. Sign up to start a Girls Who Code Club, and receive access to training, comprehensive resources, and over 120 hours of easy-to-use and flexible coding curriculum for 3-12th graders! Clubs curriculum feature coding tutorials for all skill levels, inspiring women in tech, community-building activities to increase confidence, and project-based learning related to activism. No prior coding experience to get started! Plus -- all genders are welcome in this girls-supportive environment. Learn more about the Clubs program [here](#) or join a webinar [here](#).

[Sign up here to access GWC's free Clubs curriculum & resources!](#)

NWO STEM Activity

BUILDING A SIMPLE MOTOR



Brought to you by the SSOE Group

<https://www.ssoe.com>

When you think of a motor, you may immediately think of a car, but you actually encounter motors in your home every day. If you put on clean clothes that were washed in the washing machine, ate food from the fridge, or used a computer, you used an **electric motor**.

Energy comes in many forms. Electric energy can be converted into useful work or mechanical energy by machines called electric motors. Electric motors work due to **electromagnetic interactions**: when two magnetic fields push or pull each other to create motor rotation—one field created by a permanent magnet and one field caused by electrons flowing through a wire, creating a magnetic field around the wire.

In this STEM activity, you will make your own simple electric motor.

MATERIALS

- 1 strand insulated copper wire with ends exposed about 1 inch—the "electromagnet"
- 1 black permanent marker
- 1 small disc magnet—the "permanent magnet"
- 1 D-cell battery
- 1 large rubber band
- 2 large paper clips

2) Make a bundle with the wire.

Wrap each end of the insulated copper wire around the wire loop, extending in a straight line on each side of the bundle to form the axle. This is called the "armature".

3) Insulate one side of the wire.

Hold the wire bundle you have made so that it would be flat against a wall rather than a table. Color the bare end of the wire that faces you with permanent marker. Leave the bottom side of the wire bare.

4) Form the loops.

Carefully bend one end of the paperclip around the Tootsie Pop stick to form a small loop. Repeat with the second paperclip.



*Northwest Ohio Center for
Excellence in STEM Education*

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