

# ANNUAL REPORT

# 2022



Connections

Communication

Collaboration

Fiscal Year 2022  
(July 1, 2021 - June 30, 2022)

Northwest Ohio Center for Excellence in STEM Education (NWOC)

[www.nwocenter.org](http://www.nwocenter.org)

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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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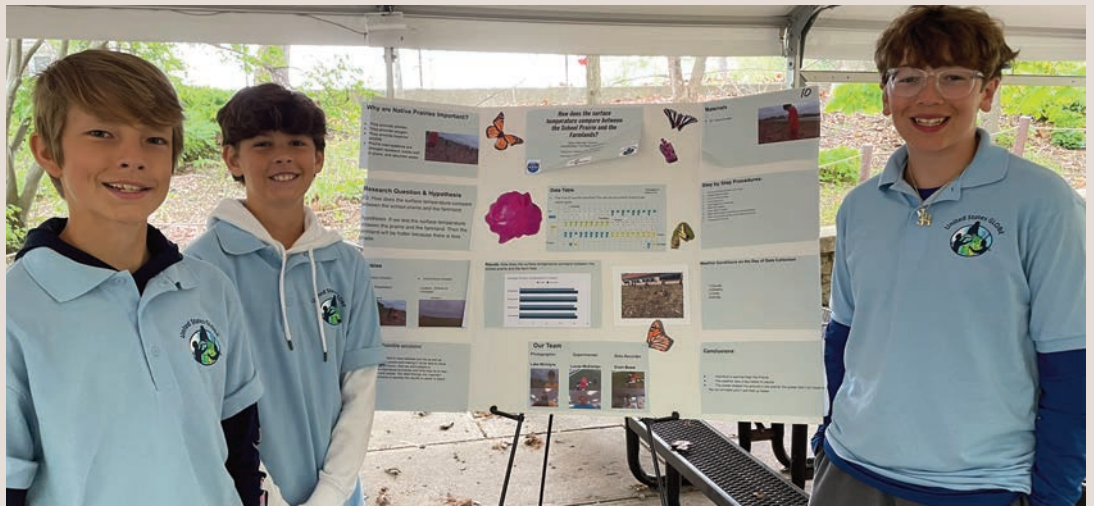
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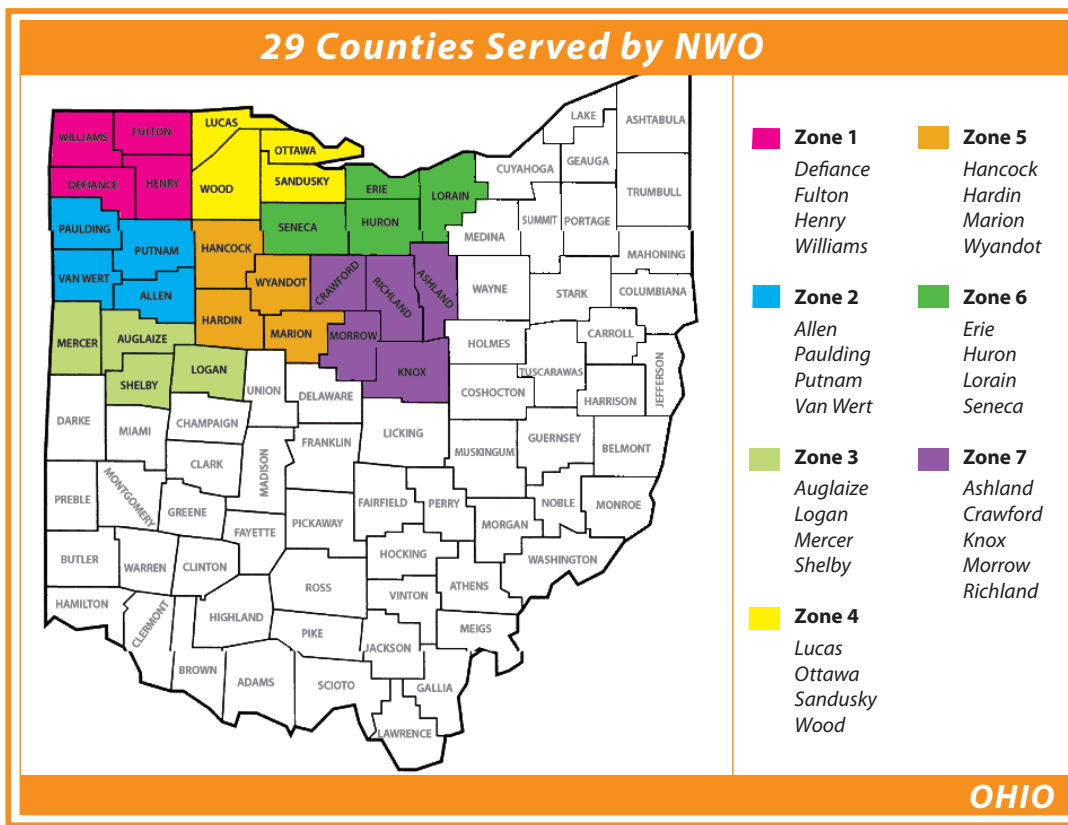
# INTRODUCTION





# Ohio STEM Learning Network/Battelle

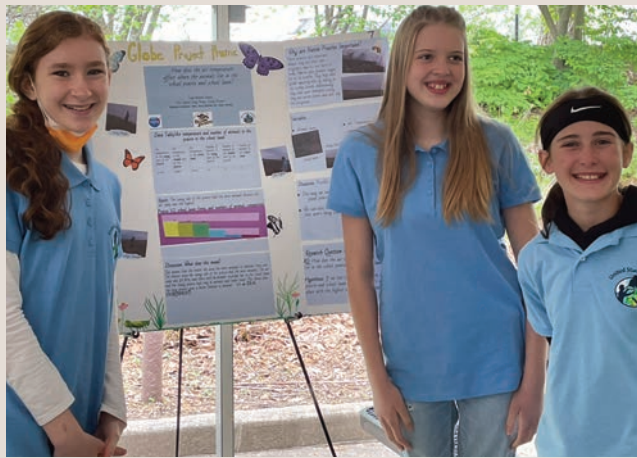
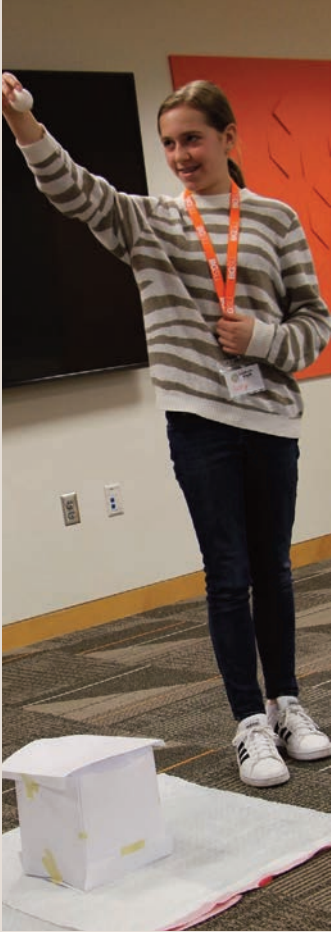
NWO is one of the seven designated STEM education hubs of the Ohio STEM Learning Network (OSLN) of Battelle, which aims to champion and advance STEM initiatives and education throughout the region and state of Ohio, and serves as the contact for the 29 counties of northwest Ohio. OSLN is a public-private partnership between Battelle and the Ohio Department of Education, 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 STEM School designation through technical assistance and feedback and promotes OSLN grants, activities and events.



## 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 eNewsletters from the past at: <https://www.bgsu.edu/nwo/e-newsletters.html>. See Appendix A for a sample of the e-Newsletter.

# COMMUNITY PARTNERS/ OUTREACH





Our priorities for regional network community outreach include strengthening and expanding our efforts to assist K-12 schools and informal education and business partners in seeking funding and pursuing initiatives to enhance STEM education in the region of northwest Ohio.

In the fall of 2021, NWO partnered with the Educational Service Center of Lake Erie West to form the Northwest Ohio STEM Collaborative, which realized our priority of expanding our reach through community engagement and collaborative partnerships. This Collaborative aims to connect, share, learn and grow STEM knowledge and networking within the local STEM community, while providing high-quality STEM opportunities for K-12 students in the region of northwest Ohio.

NWO also continues community outreach with regional business partners Lubrizol, PPG, and The Anderson's, who each share a passion for the advancement of STEM education. A frequent partner with GLOBE.gov., NWO

promotes GLOBE teacher certification and GLOBE events such as the GLOBE Student Research Symposium mentioned below.

<https://www.bgsu.edu/news/online-media-news-room/2021/09/bgsu-community-partners-to-help-local-fifth-graders-study-preserve-natural-habitats.html>

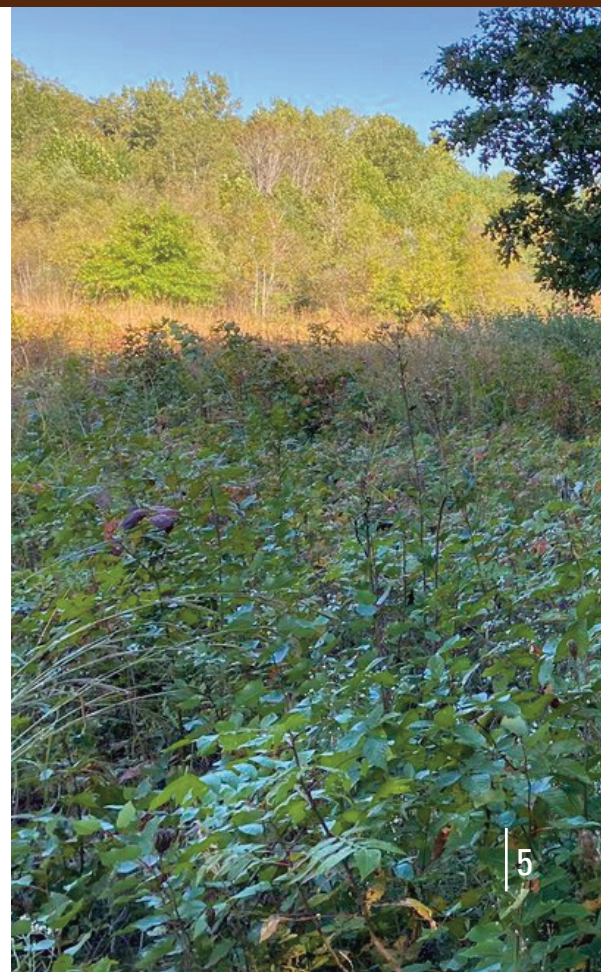
In addition, NWO relies on the following numerous community partners who support Women in STEM and other NWO efforts with hands-on, inquiry based presentations:

ESC LEW/Challenger Learning Center, Heritage Sylvania, Toledo Metroparks, Crazy Craig, Imagination Station, Keep Toledo/Lucas County Beautiful, Wood and Lucas Counties Soil and Water Conservation Districts, Center for Innovative Food Technology, Ohio 4-H Youth Development STEM, Ohio Department of Natural Resources-Environmental Education and Division of Wildlife, among others.

## Project PRAIRIE

Project PRAIRIE: (Prairies that Invigorate Inquiry Learning), is a "Wild Toledo Prairie Initiative" that extends 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.

NWO works with the Toledo Zoo Education and Conservation departments to seek grant funding to install Prairies in our partnering school districts. NWO assists the Toledo Zoo, who has procured grant funding from Owens Corning, in an expansion of this program throughout northwest Ohio.





# EVENTS



## Women in STEM

The purpose of the annual “Women in STEM” program at BGSU is to provide engaging and enriching STEM activities to 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 our 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 our 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.

In April 2022, Women in STEM was held on campus for the first “live” event since the global pandemic of 2020, with 350 students in attendance, and was held virtually with much success in April of 2021 with similar attendance. See Appendix B for examples of advertising.

“

My 7th grade girls were really engaged and happy to be able to spend time doing activities meant just for them. Job well done!

## NWO STEM Collaborative

The NWO STEM Collaborative hosted a four-session professional development series facilitated through a partnership with the Educational Service Center of Lake Erie West. All STEM educators and administrators were encouraged to attend the in-person and virtual sessions. Each session offered the opportunity for participants to engage in a hands-on experience and learn new instructional strategies as well as hear from local informal STEM organizations about high-quality classroom resources.

The Northwest Ohio STEM Collaborative offered the following PD at no cost to regional educators:

October 14, 2021	December 9, 2021	February 10, 2022	April 7, 2022
Ohio Wetland Association environmental education project	STEM Task Cards using Makerspace materials	Active Learning via Math Story Problems	Grow Next Gen PD Presentation/Center for Innovative Food Technology

See Appendix C for examples of advertising.



## GLOBE Student Research Symposium

In May 2022, NWO co-hosted a first ever GLOBE Student Research Symposium at the Toledo Zoo, with two STEM designated intermediate schools in northwest Ohio participating. GLOBE (Global Learning and Observations to Benefit the Environment) is an international science education program that is dedicated to increasing awareness of individuals and students of all ages about the global environment, to increase understanding of the Earth and support student achievement in science and mathematics.

Fourth grade students from Hull Prairie Intermediate school and Dorr Elementary researched topics that included surface temperature, soil moisture, plant diversity, air temperature, and animal diversity, and presented their projects to STEM expert reviewers. See Appendix D for example or the program.



## BioBlitz

Together with partner the Toledo Zoo, NWO held the first ever “BioBlitz BG” event on a natural habitat prairie for local fifth graders from Bowling Green city schools.

“BioBlitz BG” was held in September, 2021 at Wintergarden Park and taught participants how to observe nature and be active citizen scientists, in an effort to help preserve local natural habitats. Students were engaged 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. With assistance from many BGSU pre-service teachers, the enthusiastic fifth graders also cycled through two other citizen scientist activities during the BioBlitz. Students also took cloud observations using the

GLOBE Observer App in order to learn how different types of clouds have a different impact on the earth’s climate. Jenna Pollock, Education Program Manager at NWO, taught students how to build their own bee house to demonstrate how providing native bees with a home enhances pollination in natural habitats.

The results and data collections of all the activities were sent to the teachers for them to discuss and reflect on this information with their students to further deepen all learning.

“BioBlitz BG” was sponsored by NWO, the BGSU College of Education and Human Development, the Toledo Zoo, Bowling Green City Parks, and the Lubrizol Corporation. See Appendix E for examples of advertising & recognition.



# BioBlitzBG

Bowling Green State University



# GRANT PROJECTS



## Project EDUCATE I

**Ohio Department of Education's Diversifying the Education Profession Grant Program**  
(\$70,000 1/1/2021-6/30/2023)

NWO is partnering with Washington Local Schools to engage in this work to implement strategies to address the diversity needs within their faculty and staff over two and a half years. Twenty districts from all over the state were awarded funds and WLS represents Lucas County District 2. The mission of the Project EDUCATE (Educators of Diversity: Unified and Collaborative to Aspire Teacher Education) is to increase teachers of color and focuses on creating cohorts of diverse middle and high school students with a goal of placing the cohorts of students on a meaningful and impactful pathway to becoming an educator. Students explore careers in education and connect to positive role models and mentors in education and have been participating in after-school clubs and activities.

## Project EDUCATE II

### Ohio Deans Compact

(\$150,000, 8/21 - 6/30/22 and \$150,000 7/1/22- 6/30/23)

In August 2021, NWO was awarded an Ohio Deans Compact award (Applications for New Incentive Grants: Improving the Capacity of Ohio Institutions of Higher Education to Prepare All Educators to Better Meet the Needs of All Learners) in response to the critical demand for teachers of diversity. Project EDUCATE (Educators of Diversity: Unified and Collaborative to Aspire Teacher Education) was implemented 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. Project EDUCATE proposes to advance racial inequity in education by providing BIPOC participants with appropriate social support(s), mentoring, specialized classroom pedagogy to include targeting issues of racial equality and social justice, and focus on the whole development of the student.

### Components of Project EDUCATE II

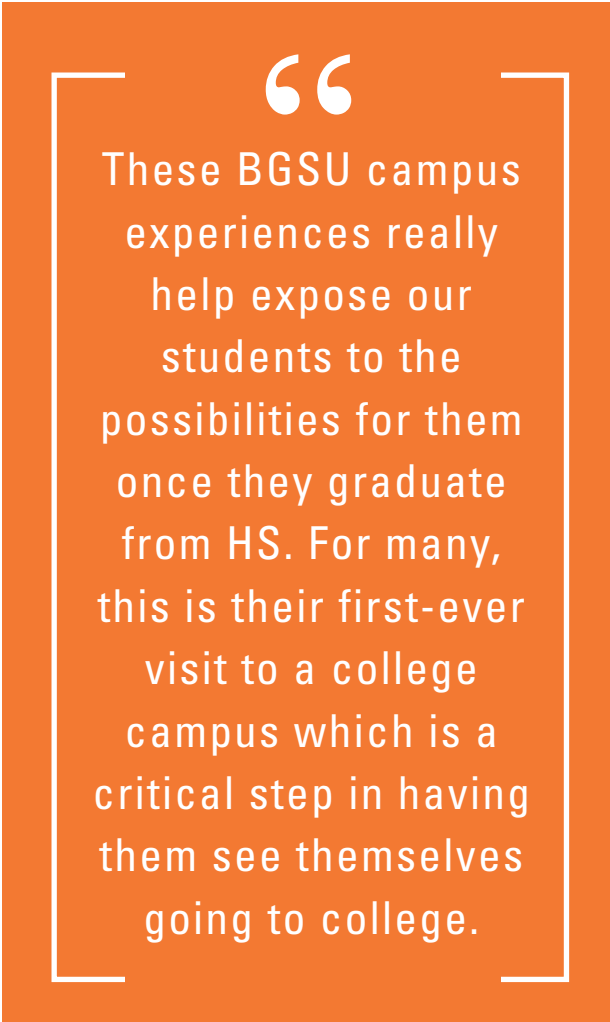
#### *Mentoring Institute*

As mentoring plays a vital part in a student’s development, NWO is working with a mentoring expert to develop a mentoring model and program with specific content and curriculum designed for participating students of Project EDUCATE. The model will be part of a Mentoring Institute, in which recruited mentors (teachers, coaches, and community members) will be trained as mentors in accordance with the goals of Project EDUCATE.

NWO anticipates the mentoring model and its toolkit will be replicated throughout the region and the state for its unique platform of multi-tiered mentoring of different age groups (beginning in 6th grade through career placement) and its emphasis on the value of becoming an educator while assisting participants in achieving life and academic skills. See Appendix F for Sample Program.

#### *Associates Degree Pathway*

One of the goals of Project EDUCATE is to create a pathway for participating WLS students to earn a certificate (such as education paraprofessional) and the opportunity to earn College Credit Plus credits towards an Associate’s degree in Education or a Bachelor of Science in Education through BGSU. NWO is developing the pathway with BGSU and the WLS Teaching Professions Coordinator at WLS and it will include the unique and innovative aspects of the BGSU Life Design coursework. See Appendix G for Associates Degree Pathway Sample.



### **Educators of Color Panel**

NWO co-hosted this event in partnership with the office of Diversity and Inclusion, and invited educators to share their lived experiences as an educator in NW Ohio. The goal was to further expose BGSU's current pre-service teachers to the different biased experiences teachers encounter in the classroom to help students become better educators, support their future colleagues, and learn more about how they can support students of color in the classroom. During this panel, educators shared their lived experiences, both positive and negative, as an educator in northwest Ohio. NWO recruited several of the panelists through the Project EDUCATE program. Many WLS high school students enrolled in the Teaching Professions pathway and involved in Project EDUCATE attended.



## **AmeriCorps/TOPSS Project**

(\$124,580 - August 2021-August 2022)

NWO collaborated on an AmeriCorps grant through Serve Ohio, called Project TOPSS (Toledo Partners for Student Success). TOPSS Partners included four non-profit organizations: Partners in Education, Junior Achievement, Tutor Smart, and Read for Literacy. Eleven Members served with these TOPSS partners, including seven BGSU students. The TOPSS project focused on educational initiatives and K-12 students with an emphasis on literacy tutoring and mentoring in academics as well as social-emotional aspects and college/career readiness conversations. NWO recruited all TOPSS Members, interviewed and placed them with the TOPSS Partners, and was also responsible for onboarding and training and communicating with them on a regular basis. The ongoing communication consisted of checking in to see how their service duties were going, offering professional growth trainings, and assisting with planning various (additional) group Service Events throughout the year. NWO also participated in weekly meetings and trainings with TOPSS Partners and ServeOhio/AmeriCorps personnel. See Appendix H for example of advertising.

## **GP-EXTRA: Geoscience Education through Authentic Research**

(formally GeoPaths Project)

NWO has been collaborating with Dr. John Farver in the School of Earth, Environment, and Society in the College of Arts and Sciences. The GP-EXTRA grant involves partnering with Toledo Public Schools, in particular the Natural Science and Technology Center (NSTC) as well as BGSU undergraduates and draws upon the benefits of place-based education to connect students to their communities and service learning. A portion of this project was paused through the pandemic and will restart in the Fall 2022.

BGSU undergraduates will participate through a laboratory component of an introductory Geology class, Geology 1010 and will work with TPS students to determine sample sites and collect and characterize the samples using GLOBE and other protocols.



# GRANTS SUBMITTED



## U-CARE

(Formally CARMA – NSF IUSE - up to \$300K up to 3 years)

Undergraduate Coral Aquarium Research Experience (U-CARE) is an Engaged Student Learning (ESL) Track, Level 1 (NSF-IUSE) Early-Stage/Exploratory Research proposal (Research Type #2) examining relationships among important constructs in education and learning to establish logical connections that may form the basis for future interventions or strategies to improve education outcomes. This proposal was in joint collaboration with Dr. Partin and Dr. Neves in the Biological Sciences department.

## LIFESci

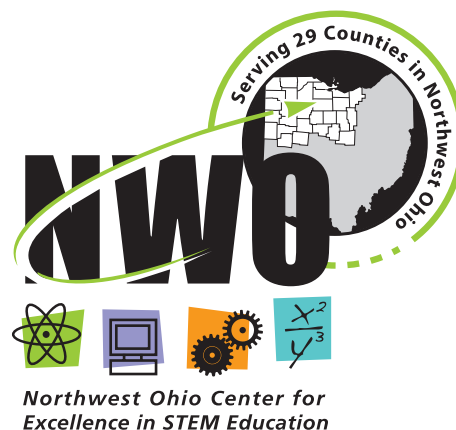
(NSF S-STEM - \$1,500,000 over 5 years)

LIFESci (Leadership through Inquiry, Family, Engagement, & Scholarship) is an NSF S-STEM Research (Track 2: Design & Development) proposal that will address the calls for improved undergraduate biology education and retention in a novel and compelling fashion by incorporating AAAS conference recommendations along with contemporary findings in biology education, neuroscience, educational psychology, and the learning sciences. A cohort-based learning community will be created and tested to promote retention, research skills, and metacognition, among low-income, academically talented biology students with demonstrated financial need at BGSU. This proposal was a joint effort with Dean Sherrell and Dr. Partin in the College of Arts and Sciences.

## Project PRAIRIE Plus

(NOAA: National Oceanic and Atmospheric Administration - \$250,000-\$500,000 for 2-5 years)

NWO/COSMOS proposed Project PRAIRIE PLUS: Prairies that expand Literacy, Understanding, and Science for Climate Resilience (P3) to Priority 1 of NOAA Environmental Literacy Program. NWO, with partners the Toledo Zoo, The GLOBE Program, iNaturalist, and local underserved school districts proposed to lead the P3 project to build climate resilience by increasing climate literacy (knowledge, skills, attitudes, and actions) of participating students and teachers using local school prairies as a context and primary climate resilience strategy. The goal of the project is to develop environmental literacy of youth grades three through eight and our local community using youth as leaders and ambassadors. P3 will aid in developing the expertise of educators while increasing public engagement and will offer rigorous and sustained PD to achieve project goals and expand, sustain, and disseminate an evidence-based, effective PD model. This proposal was prepared in collaboration with Dr. Jodi Haney, BGSU Professor Emeritus and Master GLOBE Trainer and Mitch Magdich, Curator of Education, The Toledo Zoo



# SCHOOL DISTRICT PARTNERSHIPS

## STEM Honors Diploma – Bowling Green High School

High school students can gain state recognition for exceeding Ohio's graduation requirements through a STEM Honors Diploma. High-level coursework, college and career readiness tests and real-world experiential and laboratory experiences challenge students. NWO has assisted BGHS students by serving on the panel of external experts to hear their presented research and experiences and then score their work using a provided rubric as well as offer feedback.

## Washington Local Schools Partnership

NWO has an ongoing partnership with the Washington Local Schools STEM/Curriculum Department. Academic year 2021-22 was the first year for a K-6 STEM Program in WLS and NWO assisted with consulting, professional development, and programming. The following list is the scope of work for this project. The project will expand to K-8 for the 2022-23 academic year

### **K-6 STEM Study Committee**

- NWO will plan, attend, and/or facilitate monthly (after school) STEM department meetings in partnership with WLS curriculum personnel.
- NWO will make recommendations for high-quality STEM PD and assist in scheduling the PD.
- NWO will plan and implement STEM PD for STEM teachers.
- NWO will plan and implement STEM PD for K-6 classroom teachers.
- NWO will attend/present at WLS Principal's meeting(s) when appropriate.
- NWO will create, organize and manage a shared Google Drive which will include STEM resources, research/scholarly articles, PD resources, websites, and other content.
- NWO will plan and schedule informal educators for student programming in STEM classrooms.
- NWO will assist with identifying, ordering and assembling materials for Picture Perfect STEM Kits for each STEM teacher.
- NWO will assist with planning and scheduling informal educators for student programming for weekly after-school Panther Camp sessions.
- NWO will facilitate in-person STEM field trip experiences for students.





## Washington Local Schools Partnership cont.

### SummerCamp

- NWO will recruit, communicate and work with local STEM expert Facilitators to schedule and plan STEM activities for all grade levels.
- NWO will provide WLS a list of needed materials for each facilitator/activity.
- NWO will work with facilitators to create invoices for payment (if necessary) to submit to WLS.
- NWO will attend additional camp planning meetings as needed.

## Findlay City Schools Partnership

NWO continues to partner with Findlay City Schools, in particular Bigelow Hill Elementary School (an Ohio Designated STEAM School), to develop and implement teacher professional development and PBL Training around STEM programming.

## Anthony Wayne Local Schools

NWO participates on the Waterville Primary STEAM school Advisory Board and provides technical assistance and feedback on the Ohio Department of Education application for STEAM school re-designation.

## Toledo Public Schools

NWO sponsors students from Toledo Public Schools to attend Women in STEM and consistently explores collaboration on various grant projects and initiatives.

# UNIVERSITY PARTNERSHIPS

NWO continues to partner and collaborate with many BGSU departments and faculty members whether it be on grant projects, participation in our STEM events or through professional development opportunities. Our reach across campus remains a strength of our center.

The following faculty continue to participate in our campus STEM events on a regular basis by hosting groups of 6th-12th students in their lab spaces, presenting to groups of 6th-12th students or providing college students as volunteers: **Laura Brubaker** (Department of Public & Allied Health in the College of Health & Human Services), **Jadwiga Carlson** (Code4Her Program in the College of Arts & Science, Computer Science Department), **Dr. Howard Cromwell** (Biology of Affect & Motivation Lab in the J.P. Scott Center for Neuroscience, Mind & Behavior, College of Arts & Sciences), **Dr. Nathan Hensley** and **Dr. John Farver** (School of Earth, Environment & Society in the College of Arts & Sciences), **Mary Kay Inkrott Hiser** (Thompson Scholarship Program), **Sarah Jurden** (Academic Investment in Mathematics and Science), **Dr. Jessica Kiss** (Exercise Physiology Lab, School of Human Movement, Sport, & Leisure Studies in the College of Education and Human Development), **Dr. Resmi Krishnankuttyrema** (Mechatronics Engineering Technology Program and Women in Technology Organization in the College of Technology, Architecture, & Applied Engineering), **Dr. Gabriel Matney** (Math Camp in the College of Education & Human Development, School of Teaching and Learning), **Dr. Cordula Mora** (Center for Undergraduate Research & Scholarship), **Dr. Paul Morris** (Kids' Tech University in the College of Arts & Sciences), **Dr. Matt Partin** (Marine Biology Lab in the College of Arts & Sciences, Biology Department), **Dr. Vipa Phuntumart** (Biological Science, College of Arts & Sciences), **Lisa Schaller** (Purple Hard Hats Organization in the Department of Construction Management, College of Technology, Architecture, & Applied Engineering), **Dr. Jerry Schnepf** and **Dr. Donna Trautman** (Visual Communication Technologies Program in the College of Technology, Architecture, & Applied Engineering), **Karyn Smith** (Department of Recreation and Wellness),

The following faculty/staff partner with NWO in our various grant engagements by providing professional experiences for grant participants, evaluative services, or project oversight: **Beth Ash** and **Dylan Phillips** (Project IMPACT/Virtual Simulations Training Center, College of Education & Human Development), **Dr. Kate Brodeur** (School of Teaching & Learning, College of Education and Human Development), **Dr. Jacob Burgoon** (School of Educational Foundations, Leadership and Policy in the College of Education and Human Development), **Alexis Lankford** (Division of Diversity & Belonging), **Dr. Kristina LaVenia** (School of Educational Foundations, Leadership and Policy, College of Education & Human Development), **Jennifer McCary** (Chief Diversity & Belonging Officer), **Dr. MD Sarder** (Department of Engineering Technologies in the College of Technology, Architecture, & Applied Engineering).



# APPENDICES





- A. e-Newsletters Sample
- B: Women in STEM Advertising
- C: NWO STEM Collaborative Advertising
- D: GLOBE Student Research Symposium Program
- E: BioBlitz Advertising & Recognition
- F: Project EDUCATE II Mentoring Institute Sample
- G: Project EDUCATE II Associates Degree Pathway Sample
- H: AmeriCorps/TOPSS Project Advertising



# APPENDIX A: E-NEWSLETTER


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

June 2022

## What's happening at NWO?

**TOPSS: Toledo Partners for Student Success**




NWO is one of several partners on an AmeriCorps grant called TOPSS: Toledo Partners for Student Success. Our grant members (many of whom at BGSU students) will end their year-long service term on a high with one final ServeOhio Day on June 21 from 2:00-2:45 pm at Fred Savage Park Splash Pad.

Our TOPSS Members will engage with kids in the surrounding community to play some fun games that will help them learn their letters and sounds. **Anyone is welcome to volunteer alongside our members for this event.** Please contact Danae Losey at [dlosey@bgsu.edu](mailto:dlosey@bgsu.edu) if you would like to volunteer.

This event is being held with the TOPSS partners, Partners in Education, and TutorSmart in collaboration with the Connecting Kids to Meals organization. <https://info.goshare.com/0AN4sb5YmMserveohio-day>

## K-16 STEM in the NEWS

**GLOBE Student Research Symposium Held**



In May, two Ohio Department of Education STEM designated intermediate schools in northwest Ohio participated in a first ever GLOBE Student Research Symposium at the Toledo Zoo. GLOBE (Global Learning and Observations to Benefit the Environment) is an international science education program that is dedicated to increasing awareness of individuals and students of all ages about the global environment, to increase understanding of the Earth and support student achievement in science and mathematics. As an international science and education program, GLOBE is dedicated to working with the STEM professionals of tomorrow with the scientific knowledge necessary to tackle Earth's biggest mysteries.

Hosted by BGSU, Xcite Learning, & The GLOBE Program in Partnership with The Toledo Zoo and Aquarium, the event was organized by Dr. Jodi Haney of BGSU and Xcite Learning.

Fourth grade students from Hull Prairie Intermediate school in Perrysburg (led by teacher Amy Boros) and Don Elementary (led by teacher Kristy DiSalle) in Toledo researched projects on topics that included surface temperature, soil moisture, plant diversity, air temperature, and animal diversity. Each school has an outdoor classroom "PRAIRIE" installed by the Toledo Zoo on their school property.

The day began with a keynote presentation from Jacob Schoen of the Toledo Zoo on "The Importance of School Prairies and Management Practices to Keep our Prairies Healthy". Next, research projects and posters were presented by students and reviewed by STEM experts and peers. Students then went to the zoo aquarium exhibit to explore "ideal environments", and were encouraged to learn and then share how the aquatic environments observed are ideal for the organisms that live there. Teachers asked their students to compare and contrast aquarium ecosystems with school prairies in terms of ideal environments, and to ask the question and research what makes each environment ideal for the animals and plants that live there.

This student research was supported by grant funds received from: Youth Learning as Citizen Environmental Scientists (YLACES) Student Research Symposia - United States of America - GLOBE.gov & the National Geographic Society

Expert STEM reviewers included: Jenna Pollock, Education Program Manager, BGSUNWO and Mitch Magplich, Alex Bunnis, Jacob Schoen, Kelsey Moore, Pamela Steider, all of the Toledo Zoo.

Project PRAIRIE (Prairies that Invigorate Inquiry Learning). A Wild Toledo Prairie Initiative extends 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.

For more information on the GLOBE program, please see: <https://www.globe.gov/>

For more information on Toledo Zoo's Wild Toledo PRAIRIE initiative: <https://www.toledozoo.org/en/infocoe>.

## Community STEM in the NEWS

**Local Schools Receive EPA Recognition for Maumee River Cleanup**




Fifth and six grade students, who are members of the Hull Prairie Intermediate School Environmental Club, spent a morning in March 2022 cleaning up marine debris along the shores of the Maumee River on the Perrysburg side. At the same time, seventh grade grade students from Gateway Middle School were doing the same thing on the Maumee side of the river. Over 125 pounds of trash was found in or near the water! In early May 2022 the students from both schools went back out to the shores of the Maumee River to once again complete a trash sweep and to analyze what they found. Between March and May the annual Maumee River Walleye Run was held, and the students wanted to compare the trash found along the river before and after the fishing run. They predicted they would find more fishing line, hooks, lures and bait containers, and all student groups realized their predictions were correct.

The Gateway Middle School project was led by Mike Dick, 7th grade Science teacher. The Hull Prairie Intermediate School Environmental Club project was led by Amy Boros, 6th grade Science teacher and club advisor.

The Great Lakes Environmental Protection Agency recognized on their social media the effort made by the two schools.

## STEM Opportunities


**ESC of Lake Erie West STEM Lesson Development Workshop**



The STEM Lesson Development Workshop will allow participants an opportunity to engage with other area STEM teachers in a collaborative setting for STEM lesson creation, development, brainstorming, and sharing. Participants will use these sessions to modify lessons and/or curriculum that they are already using or to develop new STEM activities to bring into their classrooms.

July 13, July 20, and July 27  
[July Seminars, Dates, and Registration Link](https://www.esc-lakeerie.org/registration)

**2022 Innovative Educators Summit | NW**



Aug. 8 - 8:30 a.m. - 3:00 p.m.  
Veterans Memorial Civic & Convention Center - Lima, Ohio

Are you a creative and innovative educator? Are you always looking for ways to engage your students? Even if you have no experience with STEM but you answered yes to these questions, this FREE summit on innovation is for you!

The Ohio STEM Learning Network and the Northwest Ohio Center for Excellence in STEM Education at Bowling Green State University will host a day-long event to explore Ohio STEM Learning Network resources, grants and programs for school educators and administrators serving the counties of Allen, Auglaize, Hancock, Hardin, Putnam and Van Wert.

Through the generous support of the State of Ohio, this summit is provided at no cost. Seating is limited - Only the first 100 educators are guaranteed a seat at the event.


Reservations will be accepted until July 31st or until the event is filled. After that, a waitlist will be created. Light pastries, refreshments, lunch and parking are included with your registration.

**We can't wait to see you at the summit!**

Please contact [cahn@battlab.org](mailto:cahn@battlab.org) if you have any questions.


To help spread the word to other educators and administrators in Allen, Auglaize, Hancock, Hardin, Putnam and Van Wert, please share this address: <https://osln.org/innovative-ow>

**CODE4her CS Mentorship Program for Girls**



"Let her learn to program with Lego EV3 Robots" at five 2.5 hour mentoring meetings held on five Sundays on BGSU campus: August 28, September 25, October 16, November 6, November 27. Each girl (6<sup>th</sup> - 8<sup>th</sup> grade) will work with the same BGSU student mentor and member of BIG Women in Computer student organization. Cost \$125.00 Space is limited! For more information, please see: <http://code4her.org>


**INFOHIO Beach Bingo**



Activities and challenges for parents and caregivers to engage children in accelerated learning throughout the summer.

<https://www.infohio.org/document-library/villam/inbio-beach-bingo-challenge>


The Fostering STEM Institute supports teacher-leaders



Instructional coaches and lead-teachers help other educators grow and strengthen teaching ideas and methods. The Fostering STEM Institute will help teacher-leaders increase coaching capacity for STEM instructional practices. Over this year-long program, participants will collaborate with peer educators from Ohio. Build connections. Share coaching approaches that enhance instruction and build STEM culture. All to help expand quality STEM education to reach more young people.

Applications close June 17, 2022. [Click here to apply.](#)


**Sustainable Aviation STEM Toolkit**



Looking for ways to build your K-12 students' STEM skills? NASA Aeronautics has new tools to help.

Assemble a solid STEM curriculum plan using aeronautics-themed hands-on challenges, lessons, videos, and more. [Click here to learn more.](#)

**OSLN Travel Grant Program**




At the Ohio STEM Learning Network, we understand that travel costs can prove an insurmountable barrier for many educators who want to learn. Especially those from rural communities. This summer, we are proud to offer a new support to help bridge that gap.

The Ohio STEM Learning Network Travel Grant Program supports educators interested in attending professional learning program and student-centered events delivered by OSLN. The aim of this grant program is to assist educators with travel and/or lodging costs associated with these events.

Applications close on a monthly basis. [Apply here.](#)

**Girls Who Code Scratch Education Collaborative (SEC)**




After an extensive, multi-interview application process, Girls Who Code is thrilled to announce our acceptance into the Scratch Education Collaborative (SEC).

The SEC supports the implementation of equitable coding initiatives using Scratch, one of the core programming languages we teach in Clubs. A two-year, collaborative cohort experience, the SEC engages participants in experiences designed to grow a community of practice and establish models for equity-centered creative coding resources.

Girls Who Code will be joining the SEC for its 2022-24 cohort, working in concert with other participating organizations to advance equity-centered creative coding. Learn more on [the SEC website](#).


**International Women in Engineering Day**



International Women in Engineering Day is June 23rd INWED is a day to celebrate women working in engineering and all that they do for society and the world. This year's theme is "Inventors & Innovators" and you can learn more by following #INWED22 and #ImagineTheFuture on social media and visiting [INWED.org.uk](http://INWED.org.uk).

**NWO STEM Activity**

**Make and Color a Paper Airplane**



This month's activity was brought to you by NASA

Product Type: Coloring and Puzzles Play and Learn Videos

Audience: Students

Grade Levels: K-4-5-8

Subjects: Flight and Aeronautics

NASA Space Crafts helps you learn to make paper airplanes. [Print the pattern](#) and [watch the video](#) to make a paper airplane and learn about NASA airplanes.

**Share Your Story!**


Thank you for your support of NWO, our programs, our activities, and our partners. Please send us updates, press releases, and news of STEM happenings at your school, district, or organization. Please submit to [news@osln.org](mailto:news@osln.org). We are always looking for great STEM education stories to feature in upcoming newsletters.

**eNewsletters from the past!**

Looking for past articles from our eNewsletters?


[Click here](#) to view and download from our eNewsletter archives

NWO/COSMOS, 444 Education Bldg., BGSU, Bowling Green, OH 43403



# APPENDIX B: WOMEN IN STEM ADVERTISING

## Recruitment Email - Attendee




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

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

---

**Tuesday, April 12, 2022**



---

This event is geared toward girls 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 female students for pursuing STEM courses/careers

**Each school is limited to 20 students  
Please register by March 25, 2022**

**2022 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/AqrjCrEr7GszRNYs8>

**Registration Deadline is March 25th, 2022**  
**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:





# Appendix B: Women in STEM Advertising cont.

## Recruitment Email - Presenter




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

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

---

**Tuesday, April 12th**



*For 6th through 8th Grade Girls*

---

**Presentation Proposals are now being accepted for the 38th 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 a keynote presentation 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 of girls. We are thrilled to host the 38th annual Women in STEM program at BGSU and look forward to your participation!

We invite submission of proposals for presentations at the 2022 Women in STEM on Tuesday, April 12th at Bowling Green State University.

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

**The deadline to register is March 16th, 2022.**

We are certainly grateful for your consideration in partnering with NWO to host this meaningful event! Please contact: [nwo@bgsu.edu](mailto:nwo@bgsu.edu) with any questions.

Please be advised that if necessary, the planned in-person event may switch to a virtual format.


Registration link: <https://forms.gle/YazqQ8r8j332CFDD9>

**2022 Schedule:**

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)

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

Sponsored in part by:





## Appendix B: Women in STEM Advertising cont.

### Presenter Recruitment Flyer

# 38th Annual Women in STEM program at BGSU!



Presentation Proposals are now being accepted for

## Women in STEM

Tuesday, April 12, 2022



***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.

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 of girls. We are thrilled to host the 38th annual **Women in STEM program** at BGSU and look forward to your participation!

**The deadline to register is March 16th, 2022**

Please contact: [nwo@bgsu.edu](mailto:nwo@bgsu.edu) with any questions.

**Registration link:** <https://forms.gle/YazqQ8r8j332CFDD9>

*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:



#### 2022 Schedule

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 C: NWO STEM COLLABORATIVE ADVERTISING

## Recruitment Email - Presenter



**EDUCATIONAL SERVICE CENTER OF LAKE ERIE WEST**

Quality People. Professional Service



**The Northwest Ohio STEM Collaborative**

**EDUCATIONAL SERVICE CENTER OF LAKE ERIE WEST**

**NWO**

Please join us for our next 2021-2022 Northwest Ohio STEM Collaborative. This session is the third of a four-part series. *You can still join this session even if you did not attend the first or second.*

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

This series is facilitated through a partnership between the Educational Service Center of Lake Erie West and Northwest Ohio Center for Excellence in STEM Education at Bowling Green State University. All STEM enthusiasts are welcome and encouraged to attend!

The NWO STEM Collaborative aims to connect, share, learn and grow knowledgeable networking within the local STEM community, while providing high-quality STEM opportunities for K-12 students in Northwest Ohio.

We look forward to collaborating with you!

A virtual recap of this session will be offered on Tuesday, February 15, 2022, from 3:45 - 4:45 via Zoom. Please contact [Natalie Crotte](mailto:ncrotte@esclakeeriewest.org) if you have any questions about this virtual event. The Zoom link will be sent to those registered prior to the event.

**Use the links below to register for the event you plan to attend. You must register even if you attended Sessions 1 and/or 2.**

**Date:** February 10, 2022

**Time:** 3:45 pm - 4:45 pm

**Location:** Educational Service Center of Lake Erie West  
2275 Collingwood Blvd. Toledo, Ohio 43620

**Contact:** Please contact Natalie Crotte with any questions regarding the session. [ncrotte@esclakeeriewest.org](mailto:ncrotte@esclakeeriewest.org) Please contact Lisa Peluso with any questions regarding registration. [lpeluso@esclakeeriewest.org](mailto:lpeluso@esclakeeriewest.org)

**Target Audience:** STEM Teachers, Content teachers looking to incorporate STEM curriculum, Pre-service teachers, District Administrators, Business partners, Community members involved with or wanting to learn more about STEM education.

**Cost:** Free

**Contact Hours:** Participants will be issued a certificate for one contact hour

**Upcoming Session:**  
Session 4 - April 7, 2022

In-person Session February 10, 2022

Virtual Recap February 15, 2022

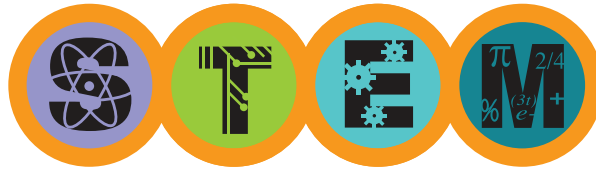
**NWO**  
Northwest Ohio Center for Excellence in STEM Education

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

ESC of Lake Erie West is a partner of NWO

# Appendix C: NWO STEM Collaborative Advertising cont.

## Recruitment Flyer



### The Northwest Ohio STEM Collaborative

***Please join us for the first 2021-22 STEM Series and be a part of the Northwest Ohio STEM Collaborative***



**Who:**

- Area STEM teachers
- Content teachers looking to incorporate STEM curriculum
- Pre-service teachers
- District administrators
- Business partners
- Community members involved with or wanting to know more about STEM education



**When:**

October 14, 2021 • 3:45-4:45 pm at **Educational Service Center of Lake Erie West**, 2275 Collingwood Blvd. Toledo, Ohio 43620



**Agenda:**

- STEM Activity
- Opening Remarks and Introductions
- Sharing of Resources
- Open Forum
- Interest Survey and Closing Remarks

This series is facilitated through a partnership between the Educational Service Center of Lake Erie West and the Northwest Ohio Center for Excellence in STEM Education at Bowling Green State University.

The NWO STEM Collaborative aims to connect, share, learn and grow knowledgeable networking within the local STEM community, while providing high-quality STEM opportunities for K-12 students and teachers in Northwest Ohio.

This session is the first of a four-part series for the 2021-2022 school year. We look forward to collaborating with you!



**Upcoming Sessions:**

Session 2: December 9, 2021  
Session 3: February 10, 2022  
Session 4: April 7, 2022





# APPENDIX D: GLOBE STUDENT RESEARCH SYMPOSIUM PROGRAM

## 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.

## About Project PRAIRIE:

(Prairies that Invigorate Inquiry Learning), 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.

## GLOBE STUDENT RESEARCH SYMPOSIUM

Monday, May 23, 2022

Toledo Zoo Broadway Pavillion

10 AM - 1:30 PM

Hosted by: BGSU, Xcite Learning, & The GLOBE Program  
In Partnership with The Toledo Zoo and Aquarium  
Event Organizer: Jodi Haney, BGSU and Xcite Learning



## EXPERT STEM REVIEWS:

Emilio Duran, Director, BGSU/NWO

Jenna Pollock, Education Program Manager, BGSU/NWO

Mitch Magdich, Curator of Education, The Toledo Zoo and Aquarium

Alex Burris, School and Community Programs Coordinator, The Toledo Zoo and Aquarium

Jacob Schoen, Education Program Manager, The Toledo Zoo and Aquarium

Kelsey Moore, Education Program Manager, The Toledo Zoo and Aquarium

Pamela Steider, Education Program Manager, The Toledo Zoo and Aquarium



This student research symposium is a Youth Learning as Research Symposium National Geographic

## AGENDA

- 10:00 AM **Welcome, Healthy Snack, & Keynote:** The Importance of School Prairies and Management Practices to Keep our Prairies Healthy by: Jacob Schoen, The Toledo Zoo
- 10:30 AM **Poster Session A** - 5 posters (non-presenter students and STEM experts conduct peer review using GLOBE form)
- 11:00 PM **Poster Session B** - 4 posters (non-presenter students and STEM experts conduct peer review using GLOBE form)
- 11:30 AM **Poster Session C** - 4 posters (non-presenter students and STEM experts conduct peer review using GLOBE form)
- 12:00 PM **Box Lunches**
- 12:30 PM-1:30 PM **Peer Review & Investigating The Aquarium's Ideal Environment** (Dorr Elementary and HPI students rotate to each activity every 30 minutes)
  - a. **Peer Review and Sticker Awards, GLOBE Evaluations, and Prairie Animal**
  - b. **Zoo Exploration Exhibit:** - students go to the zoo aquarium exhibit to explore "ideal environments". Be ready to share how the aquatic environments observed are ideal for the organisms that live there. Teachers compare/contrast aquarium ecosystems with school prairies in terms of ideal environments. What makes each environment ideal for the animals and plants that live there?
- 1:30 PM **Closure: Students pick up GLOBE notebook and return to bus**



GLOBE Student Research Symposium

## STUDENT PROJECTS, PRESENTERS, AND PRESENTATION GROUPS

### DORR ELEMENTARY 4TH GRADE STUDENT PRESENTATIONS

Teacher: Kristy DiSalle

Names	Topic	Presentation Group
Selena Alarcon, Mason Norris, Graeme Whitacre	Surface Temperature	A
Alivia Brown, Gabe Caudill, Ny'Jai Davis	Soil Moisture	A
Katelyn Duke, Ryan Bryant, Evan Millsaps, Rue Warner	Soil Temperature	B
Gabriella Old, Zayla Miller, Myson Davis	Plant Diversity	B
Breanna Polcyn, Nathan Brake, Ava Rehtine	Air Temperature	C
Landon Bellman, Adalyn Brazzil, Paisley Ricard	Animal Diversity	C

### HULL PRAIRIE INTERMEDIATE

Teacher: Amy Boros

Names	Topic	Presentation Group
Jocelyn DeLauter, Emily Manges, Elise Segovia	Air temperature, Animal Frequency	A
Zachary Krueger, Brady Haye, Varnith Sadhu	Surface Temperature	A
Lucas McClellan, Evan Bowe, Lake McIntyre	Surface Temperature	A
Kenzie Frye, Jade Saxton, Emma Strunk	Plant Diversity	B
Nathan Pfost, Aiden Wilson, Brayden Bostater, Carter Weiss	Soil Moisture	B
Madison Crowley, Olivera Freeman	Surface Temperature	C
Lily Johnson, Maura Tehan, Megan Ruckriegle, Quinn Rerucha	Surface Temperature	C

# APPENDIX E: BIOBLITZ ADVERTISING & RECOGNITION



## PRAIRIE PARTNERSHIP

NWO has partnered with the Toledo Zoo and Aquarium and their Wild Toledo Project PRAIRIE: *PRAiries that InvigoRate Inquiry LEarning initiative*, an inquiry-based education program that prepares students and their teachers to learn about native prairie habitats found on an outdoor classroom built on their own school's property.

## JOIN THE INITIATIVE

The hope is that more schools in the region of northwest Ohio will become interested in this initiative that engages students to engage in experiential inquiry and citizen science activities to study prairie habitats, develop a stronger connection to the local ecology, contribute to existing knowledge through data collection, and view themselves as part of the solution to conservation-related problems and above all, climate resilience.

## PRAIRIE INSTALLATION

Toledo Zoo staff will install urban or rural prairies on school property in the spring while providing curricula and support for teachers and students to learn the basic skills of taking care of their prairies. Students will be engaged and prepared to become prairie "ambassadors" and will ultimately participate in a "BioBlitz" in the fall, an event that focuses on finding and identifying as many species as possible in a specific area over a short period of time.

## BIOBLITZ BG

In the fall of 2021, NWO, the Toledo Zoo and Bowling Green City Schools held the first annual "BioBlitz BG" at Wintergarden Park, with support from the BGSU College of Education and Human Development, Lubrizol, and the Bowling Green City Parks and Recreation Department.

The goals for this event were simple: **ENGAGE•LEARN•ACT!** The participating students from Crim Elementary engaged in exploration and investigation in nature and learned 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, students were inspired to take action to help protect and preserve both local prairies and planet Earth.

For more information about BioBlitz BG, please visit: <https://www.bgsu.edu/nwo/programs/bioblitz-bg.html>.

## TO INSTALL A SCHOOL PRAIRIE LOCALLY

For more information on the Toledo Zoo Wild Toledo Project PRAIRIE initiative, please see:

<https://www.toledo zoo.org/wildtoledo>.

## Appendix E: BioBlitz Advertising & Recognition cont.

### BioBlitz Recognition

BG INDEPENDENT NEWS

HOT TOPICS SEPTEMBER 28, 2021

# BioBlitz



CHILDREN, CLIMATE CHANGE, EDUCATION, PARKS SEPTEMBER 29, 2021

### BG fifth graders become 'citizen scientists' for the day

By JAN LARSON McLAUGHLIN BG Independent News Armed with an app, bug spray and youthful curiosity, Bowling Green fifth graders became "citizen scientists" for the day Wednesday. They roamed the trails of the Wintergarden Park prairie, finding different plant species and sending their data to scientists around the world. In the first few minutes, they identified bushy aster, shiny sumac, common wrinkle leaf goldenrod, and poison ivy. "Anyone can be a scientist," Mitch Magdich, from the Toledo Zoo, told the students. "It's not just someone in a lab with crazy hair and a nerdy pocket protector." Fifth grader Mason Naus uses app to identify a plant. Crim fifth grader Mason Naus was inspired as he catalogued plant life in the prairie. "I think it's really interesting," he said. "There's some interesting plant life and bug life here. I think it's cool that I get to help out scientists and maybe make some new discoveries." It just doesn't get much better than that for Emilio Duran, director of the Northwest Ohio Center of Excellence in STEM Education. The BioBlitz at Wintergarden Park was a team effort by Bowling Green Parks and Recreation, Bowling Green City Schools, BGSU Science and Environmental Education, and BGSU Early and Inclusive Childhood Education undergraduates. The event was part of the national Parks for Pollinators campaign, which is aimed at raising public awareness about the importance of pollinators and positioning parks as national leaders in advancing pollinator health. During the last 30 years, the

U.S. has seen a steady decline of pollinators – such as bees, bats and butterflies. Fifth graders were matched up with BGSU students for the BioBlitz. Before they set off into the prairie, the Crim Elementary fifth graders were paired up with college students studying to be future teachers. They were given a pep talk by Duran. "You should be smiling underneath those masks," Duran said. "You are going to be learning and having fun – what a concept." But Duran also stressed the importance of their roles as citizen scientists. "Whatever you do today is going to matter," he said. Duran talked about the impacts of climate change, such as the frequent fires in the western U.S., and the shrinking habitat for polar bears. "It is very important what you are going to do today," Duran said. "We're running out of time." The BioBlitz is an ideal way to acquaint students with nature, Magdich said. "We're going to be looking at every living thing in that prairie," he said. "And making that information available to scientists all over the world." Jodi Haney, professor emeritus of Science and Environmental Education at BGSU, told the students they were about to become biologists and botanists. "Let's get busy doing what we need to do," Haney said. Students send information on the plants they identified. The role of citizen scientists is to gather information that can be used to correct the harm to the world caused by humans, Duran said before the students arrived. "It's where regular individuals are going to collect data and work with scientists all over the world," he said. "It's little steps to make the world better for everyone." Using the iNaturalist app, students identified plants and bugs. The student-collected data was then uploaded to the iNaturalist platform, a learning application used for scientific data collection and conservation. Students also observed clouds and measured the temperature of the air, surface and soil to compare prairie habitats for the Global Learning and Observation of the Environment program. The data was uploaded to share with scientists who use GLOBE data to better monitor the earth. And students constructed their own bee houses, out of tin cans, cardboard toilet paper tubes and straws. The houses were built to provide native bees with homes to enhance pollination in natural habitats. Students made bee houses out of food cans, paper rolls and straws. The "hands-on minds-on" approach to learning is the ideal way to get students involved, Duran said. Fifth grader Riley Morris was busy snapping photos of plants and a mystery bug that was too quick for the camera. "I think it's cool, just looking at the stuff," she said. She expressed one negative – "I don't like mosquitoes." The BioBlitz was a learning experience for the elementary students and the future educators. "We want both groups to engage with science and nature," Haney said. "We want them to feel a little more empathy to act." And after more than a year of not being able to hold school programs due to COVID, hosting busloads of children at the BioBlitz was a welcome change. "The parks are thrilled that this is happening – to have kids educated at Wintergarden again," said BG's Natural Resources Coordinator Chris Gajewicz. Students walk through prairie area for BioBlitz.



# Appendix E: BioBlitz Advertising & Recognition cont.

## BioBlitz Recognition

☰ **24 NEWS** NEWS WEATHER CORONAVIRUS FEATURES CHIME IN WATCH **LIVE**

### Bowling Green fifth graders gather data for national environmental observation program

by NBC 24 Staff | Wednesday, September 29th 2021 👤



Sept. 29, 2021: Bowling Green fifth graders participate in the "BG Blitz" at Wintergarden Park. (Michael Fairchild/WNWO)

BOWLING GREEN, Ohio — With support from community organizations, **Bowling Green State University's STEM team** got an opportunity assisting fifth graders from **Bowling Green City Schools** with studies and preservation of natural habitats.

Students gathered Wednesday morning at **Wintergarden Park** for the first "BioBlitz BG" session, one of several happening across the U.S. this week.

Each student tallied the number of plants and animals they found in the park. Their findings were uploaded to **iNaturalist**, a platform for conservation data.

They also built their own bee houses and participated in the **Global Learning and Observation of the Environment** program by observing clouds and measuring air, surface and soil temperatures in the prairies. This data will be utilized by scientists to monitor earth.

## Appendix E: BioBlitz Advertising & Recognition cont.

### BioBlitz Recognition

# THE BLADE

## BOWLING GREEN STUDENTS BECOME CITIZEN SCIENTISTS



THE BLADE/JETTA FRASER

Jodi Haney, a Bowling Green State University professor, exhorts fifth graders to 'engage, learn, act' before they take some temperature readings while learning about nature at Wintergarden Park in Bowling Green. Education students from the university aided the youngsters Wednesday in conducting the first-ever 'BioBlitz BG.'



BGSU senior Sheana Jones, left, helps fifth grader Amara Jones (no relation) make a bee hive, one of several activities as the students observed nature as citizen scientists.

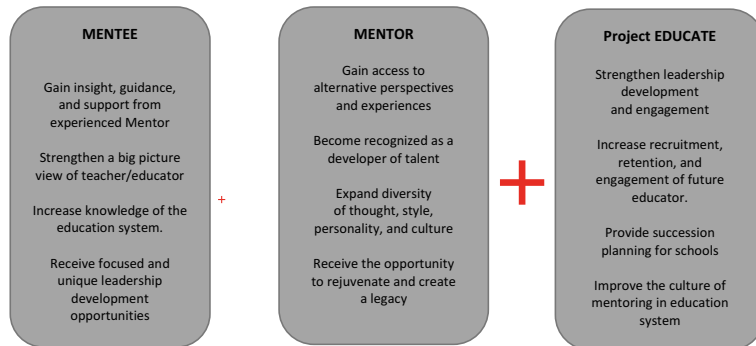


BGSU senior Marisa Faass, left, and Bowling Green fifth grader Eliana Rush use the app iNaturalist to identify a plant and share that information with scientists worldwide.



# APPENDIX F: PROJECT EDUCATE II MENTORING INSTITUTE SAMPLE

Mentoring brings benefits to the mentee and the mentor, as well as the Project EDUCATE, as illustrated below.



Even though informal mentoring exists, this Mentoring Toolkit focuses on helping Project EDUCATE develop a formal mentoring program. Formal mentoring programs are structured at the organizational level with specific purposes or goals for the program. Mentees are formally paired with mentors and the mentor-mentee pairs identify specific goals for their relationships.

There are various types of formal mentoring programs, including traditional one-on-one mentoring as well as mentoring circles, also called group mentoring.

**Traditional one-on-one mentoring** is a common model in which one mentor is matched with one mentee. This model allows both mentor and mentee the opportunity to develop a personal relationship and provides specific, individualized learning opportunities for the mentee. This model can be difficult if there are more mentees than available mentors. If this is the case for your project, consider group or speed mentoring as an alternative.

**Group mentoring** consists of one mentor who is paired with several mentees at one time. The number of mentees varies. The group meets together to discuss various topics. This type of mentoring can include peer mentoring because both the mentor and the peers help one another learn and develop skills and knowledge. Group mentoring can create challenges in scheduling meetings. It also lacks the personal relationship that some people prefer in mentoring. On the other hand, with more people involved group mentoring can offer ease of conversation and robust discussion.

**Speed Mentoring** helps everyone connects in a matter of minutes. After speed dating, speed mentoring is a newer concept. It is an efficient networking, and the methodical pursuit of a method for our participants to seek out mentoring.

## Developing a Mentoring Program

Once your group or organization has decided that a mentoring program can play an important role in your project's overall engagement and development program, we recommend that you start with a small pilot mentoring program, so that you can determine what works and make changes as needed before rolling out the program to a large number of individuals. It will also allow you an opportunity to better embed mentoring into your project.

There are four stages in developing a mentoring program and in each stage several steps.

<p><b>STAGE 1</b></p> <ul style="list-style-type: none"> <li>Identify goals for your mentoring program</li> <li>Define roles and identify individuals to fill those roles</li> <li>Develop a communication plan</li> <li>Develop mentoring program description</li> <li>Clearly define eligibility for mentors and mentees</li> </ul>	<p><b>STAGE 2</b></p> <ul style="list-style-type: none"> <li>Recruit participants</li> <li>Select participants</li> <li>Match mentors and mentees</li> </ul>
<p><b>STAGE 4</b></p> <ul style="list-style-type: none"> <li>Evaluate participant satisfaction and outcomes</li> <li>Evaluate your group experience and operational capacity</li> <li>Analyze lessons learned and move to the next phase</li> </ul>	<p><b>STAGE 3</b></p> <ul style="list-style-type: none"> <li>Launch the program</li> <li>Provide training</li> <li>Troubleshoot to resolve differences</li> <li>Provide other support throughout the program</li> </ul>



# APPENDIX G: PROJECT EDUCATE II ASSOCIATES DEGREE PATHWAY SAMPLE

## Ready, Set, Go TO COLLEGE

A COLLEGE PREP CHECKLIST FOR PROJECT EDUCATE

### Whitmer High School (Jodie Tucker-'JT') Proposal

#### FRESHMAN AT WHITMER

Class	Option
English 9	
Algebra I (or higher)	
World History	
Physical Science	
Health	Elective: May take Intro to Teaching Professions
Financial Literacy	Elective
Elective	Elective

#### SOPHOMORE AT WHITMER

Class	Option
English 10	
Geometry (or higher)	
American History	
Biology	
Physical Education	
Elective: If student did not take during their 9th grade year: Intro to Teaching Professions	Elective
Elective	Elective

#### JUNIOR YEAR SUMMER SCHOOL

(Summer between Sophomore and Junior year)

**Class**

CCP Elective-Student Choice 3-4 credit hours (may be able to fit this in during the senior year or summer between junior and senior year.

## A COLLEGE PREP CHECKLIST FOR PROJECT EDUCATE

#### JUNIOR AT WHITMER

Class	Option
English 11 OR If the student wanted to take CCP-College Comp I, the student would only need to take one semester of English.	
Algebra II (or higher) OR the student could take one of the CCP math courses, the student would only need to take one semester of Math	
American Government	
CCP w JT EDTL 2300 Intro Educational Technology (2)	CCP w.JT EDPI 2980 Schools, Society and Cultural Diversity (3)
CCP online GEOL 1000 Intro to Geology OR FN 2070 & 2080 Introduction to Human Nutrition and Lab (4)	CCP online Psyc 1010 General Psychology (4)
CCP online Hist 1250 Early America or Hist 1260 Modern America (3)	CCP online POPC 1600 Intro to Popular Culture or MUCT 1250 Music World Cultures (3)
Students would not have to take any other courses as each CCP course may take 2 up two periods in the student schedule.	

#### SENIOR YEAR SUMMER SCHOOL

(Summer between Junior and Senior year) OR during the senior year

**Class**

CCP Math 2130 Math for Early Childhood Teachers (Replace with a Math course during senior year?-per BGSU (3)

CCP Elective choice BGSU online (3-4)

## A COLLEGE PREP CHECKLIST FOR PROJECT EDUCATE

#### SENIOR AT WHITMER

Class	Option
English: UT CCP College Comp I @WHS (3) (OR only one CCP course if the student elected to take one CCP English course during their junior year.)	English: UT CCP College Comp II @WHS (3)
Math: UT CCP Stats @ WHS (3) (OR only one CCP course if the student elected to take one CCP Math course during their junior year.)	Math: UT CCP College Algebra @ WHS (3)
CCP w JT EDTL 2300 Intro to Inclusive Education (2)	CCP w JT EDTL 2010 Intro to Education (3)
CCP w JT Life Design (1)	
May take 2 CCP courses or 2 year long or 4 semester courses.	

#### PATHWAY YEAR AT BGSU

	Class	Description
<b>Fall</b>	EDTL 1110 - 3	Continuum of Early Childhood Development
	EIEC 2120 - 2	Foundations of Inclusive Early Childhood Education
	EIEC 2110 - 3	Intro to Young Children w/Exceptional Needs
	EDPI 3020 - 3	Educational Psychology
	EIEC 2100 - 1	Inclusive Perspectives on EC Classrooms
	EIEC 2140 - 3	Communication Develop. In Young Children
	<b>16 Credits</b>	
<b>Spring</b>	ENG 3420 - 3	Literacutre for Young Children
	EIEC 2150 - 3	Creative & Expressive Arts for IEC
	EIEC 2210 - 3	Cultural & Linguistic Diversity iin ECE
	EIEC 2220 - 3	Working with Families of Young Children - (replace with HDFS 19030 Lifespan Human Development?)
	EIEC 2230 - 3	Infants & Toddlers in Natural Environment
	EIEC 2240 - 3	Infant & Toddler Curriculum & Teaching
	<b>18 Credits</b>	

# APPENDIX H: AMERICORPS/TOPSS PROJECT ADVERTISING

## WHAT'S AT YOUR CORE?

*Join the National Service Movement through AmeriCorps and engage with students in an Educational Setting!*

## DO YOU LOVE KIDS?



### UNIQUE SERVICE OPPORTUNITY POSITION

- Serve as an education advocate
- Gain high-quality, professional experience
- Earn a living allowance
- Receive an education award/scholarship
- Receive healthcare (full-time positions only)
- Receive childcare
- Flexible and hybrid work environment



### NECESSARY SKILLS

- Clear communicator
- Service-minded
- Leadership abilities
- Energetic and Focused
- Tech-savvy (G-Suite, Microsoft Suite)
- Organized
- Self-starter
- Willingness to learn
- Creative contributor



### ACTIVITIES INCLUDE

- Working with students during and after school
- Mentoring students
- Tutoring students
- Engaging with teachers
- Working with volunteers
- Assisting with educational events

**MAKE A DIFFERENCE – YOUR SURROUNDING TOLEDO COMMUNITY NEEDS YOU**

Contact Jenna Pollock at [jpolloc@bgsu.edu](mailto:jpolloc@bgsu.edu) for more information!



AmeriCorps is the federal agency connecting individuals and organizations through service and volunteering to tackle the nation's most pressing challenges.





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**Human Development**  
BOWLING GREEN STATE UNIVERSITY

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FOR THE PUBLIC GOOD.