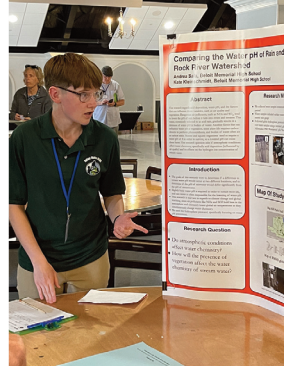
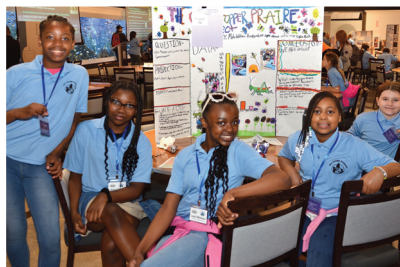


2024 GLOBE Midwest Regional Student Research Symposium



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.

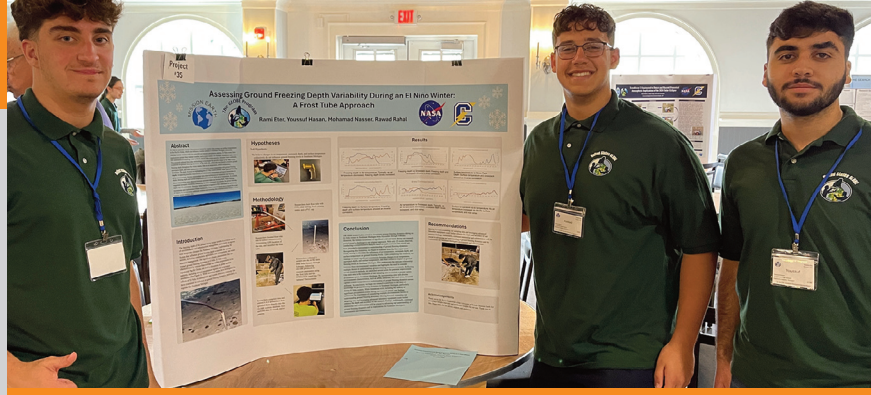
As part of the program, students created a research project involving the atmosphere, biosphere, hydrosphere, and pedosphere. After a year of collecting data using GLOBE protocols, they presented their research project results at the Symposium, which was held over three-days. The students also collected 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.



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 creek 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.

