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Now in its 74th year and with more than 70,000 alumni, State Science Day is the pinnacle of student originated, inquiry-based science education for Ohio’s students. The academic equivalent of a state athletic championship, this year’s event is one of the largest of its kind in the nation. Drawing upon a base of over 10,000 students, 603 students in grades 5–12 from 177 schools will be evaluated on their scientific research and communication skills. They will compete for $400,000 in scholarships and awards.

First held in 1949, the 74th Annual State Science Day is sponsored by: The Ohio Academy of Science, The American Electric Power Foundation, Battelle, Broadcom, CAS, Charles River Laboratories, Kent State University, Kokosing, OhioEPA–The Ohio Environmental Education Fund, and the Ohio Tuition Trust Authority–College Advantage.

https://ssd.ohiosci.org/

CONGRATULATIONS TO ALL EXHIBITORS

The investment of time in pursuing an independent research project in science pays generous returns to each student. By honoring hundreds of projects with nearly $400,000 in sponsored awards and scholarships, we seek to honor all exhibitors for their hard work. Please accept our sincere congratulations on your outstanding work and our encouragement to continue your interest in scientific research. Thank you for participating in this year’s State Science Day.

MICHAEL E. WOYTEK, Executive Director

FUTURE SSD DATES

To Be Announced
AMERICAN ELECTRIC POWER FOUNDATION
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Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio, Battelle serves customers in the national security, health and life sciences, and energy and environmental industries. Battelle also is one of the nation’s leading charitable trusts focusing on societal and economic impact, vigorously supporting and promoting science, technology, engineering and mathematics (STEM) education. Battelle believes STEM education is an urgent national priority that requires bold goals, higher standards and greater accountability in our educational system to better prepare our nation’s K-12 students for careers in science and technology that ultimately enhance the U.S. innovation enterprise. | battelle.org

BROADCOM FOUNDATION
Broadcom Foundation’s mission is to advance STEM education and increase equity and access in STEM education, especially for young women and underrepresented youth. The foundation’s sponsored programs create volunteer opportunities for employees and mentors and strengthen social responsibility and global citizenship. A primary goal of the foundation is to encourage youth to learn coding as a skill and universal language of the future that opens opportunities for exciting careers in STEM fields. | broadcomfoundation.org

CAS
CAS, a division of the American Chemical Society (ACS), was founded in 1907. Chemists around the world understood the value to research, in aggregating scientific information. Today we are a global organization of expert scientists, technologists, and business leaders with a long and successful history of harnessing scientific information opportunities. We provide trusted information solutions, including SciFinder®, STN® and custom services; for industry, government and academic institutions. | cas.org

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Kent State University is the highest-ranked public university in northern Ohio on the Top Public Schools and Best National Universities lists by U.S. News & World Report. Kent State also holds the esteemed distinction of being one of only five institutions in Ohio to be recognized as an elite research university by the Carnegie Classification of Institutions of Higher Education. Kent State students are encouraged to pursue their passions and are supported every step of the way with award-winning resources focused on everything from academic success to mental health and well-being. In fact, curious learners who have not identified a specific major participate in Kent State’s nationally recognized Exploratory program, which caters to students to help them confidently declare a major while staying on track to a timely graduation. With more than 360 programs of study and dedicated career exploration and development through access to internships and co-curricular experiences, students at Kent State are positioned for success and find that their academic interests turn into careers they are passionate about. Looking to stay close to home or prefer to learn abroad? Kent State’s eight campuses span Northeast Ohio, along with a College of Podiatric Medicine, a Twinsburg Academic Center and academic sites in major world cities such as New York City, Geneva and Florence. The addition of new learning environments from the sciences to the arts and the development of exciting new academic programs characterize Kent State’s focus on transformational educational experiences. | www.kent.edu

Continued on next page.
ABOUT THE SPONSORS (CONT.)

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OEPA - THE OHIO ENVIRONMENTAL EDUCATION FUND
The Ohio Environmental Education Fund (OEEF), which is administered by Ohio EPA’s Office of Environmental Education, provides grants for projects that increase awareness and understanding of environmental issues in Ohio. | epa.ohio.gov/oee

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WELCOME

By Dr. Charles Flower, President, The Ohio Academy of Science

On behalf of The Ohio Academy of Science, it is my pleasure to welcome you to our Virtual State Science Day 2022, where we celebrate your hard work and scientific achievements. After some challenging years during the pandemic, we are emerging with a rekindled curiosity, improved collaborative tools, and a new drive to advance scientific discovery.

The fields of science, technology, engineering, and mathematics remain instrumental in driving advancements around the globe. The breadth and complexity of the problems society now faces necessitates a broad pool of creative minds to tackle these emerging issues. Educators, formal or otherwise, who cultivate a passion for curiosity and problem solving through classroom and extracurricular pursuits are foundational to these successes. The projects presented are a testament to these efforts and highlight the creativity of our young scientists.

As I welcome you to our virtual State Science Day 2022, I would like to thank all the students, parents, teachers, school administrators, research advisors, volunteer judges, sponsors, and staff of the OAS for making this possible. Thanks for being part of this fantastic event!
We support the development of the next generation of scientists and health practitioners.

The Research Institute’s Trainee Association (RITA) is proud to sponsor the 6th Annual RITA Biomedical Research Award for high school students studying biomedical science or biobehavioral health.

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CONGRATULATIONS TO OUR 2022 MULTI-YEAR STUDENTS

Each year, the Academy recognizes the students who achieve State Science Day attendance for four years or more. Congratulations to these students as this is an incredibly difficult honor to achieve. Student names are listed alphabetically followed by grade level.

7-year Awardee
Serena Kataria, 12

6-year Awardees
Charley Clyne, 10
Carsyn Hagans, 12
Julie Sebastian, 10
John Shin, 11
Emily Swope, 11
Mihir Vador, 12
Wyatt Vick, 10

5-year Awardees
Asantewa Bonna, 12
Kennedy Brehm, 11
Snehal Choudhury, 12
Luca Gagliano, 11
Sadhil Mehta, 9
Bryn Morgan, 11
Emily Plageman, 11
Marissa Shook, 11
Dana Stan, 9

4-year Awardees
Jack Agnew, 11
William Allen, 9
Winnie Bodin, 8
Mary Cunningham, 8
Michael Ge, 9
Adith Joshua George, 12
Liam Hartley, 9
Kara Jones, 9
Ryan McGinnis, 12
Addison Mullins, 9
Allison Payton, 8
Natalie Stover, 12
Anthony Tarutani, 8
Jewell Tyler, 10
Ethan Varner, 12

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Schedule a visit at go.osu.edu/cfaesvisit. Additional resources are at students.cfaes.ohio-state.edu.

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit cfaesdiversity.osu.edu. For an accessible format of this publication, visit cfaes.osu.edu/accessibility.
2021 STATE SCIENCE DAY AWARDS

2021 DR. LYNN E. ELFNER YOUNG SCIENTIST Awardees

The 2021 Dr. Lynn E. Elfner Young Scientist awardees selected for outstanding projects in grades 5 to 8. All received a superior award. Student names are listed alphabetically followed by grade level.

<table>
<thead>
<tr>
<th>Awardee, Grade</th>
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<td>Tyler Gier, 5</td>
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<td>Katie Graff, 7</td>
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<td>Winifred M. Bodin, 7</td>
<td>Esh’char Harel, 5</td>
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<td>Huck Bortz, 5</td>
<td>Baer Huttenbauer, 5</td>
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<td>Parker James Kaibas, 8</td>
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<td>Beckett A. Brinkman, 5</td>
<td>Vishwum Kapadia, 8</td>
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<td>Scarlett Grace Buchanan, 6</td>
<td>Suhas Katta, 6</td>
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<td>Abigail High Collier, 8</td>
<td>Chinmay Sanjay Khare, 8</td>
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<td>Diego Leonardo Coutino Granados, 8</td>
<td>Amanda Larsen, 5</td>
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<td>Griffin Davis, 6</td>
<td>Nathan Yunoo Lee, 5</td>
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<td>Omar Elbadawy, 7</td>
<td>Daniel Lust, 8</td>
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<td>Leland Yilin Fan, 5</td>
<td>Daniel Nicolas Maddox, 6</td>
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<td>Mario Ferreri, 8</td>
<td>Joe Mansour, 7</td>
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<td>Jonathan David Gale, 7</td>
<td>Lainey Addison Miller, 6</td>
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<td>Heera Harish Nair, 7</td>
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<td>Kathleen Elizabeth Palmer, 6</td>
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<td>Lena Piatt, 7</td>
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<td>Andrew Michael Policastro, 7</td>
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<td>Bharath Ramanujam, 6</td>
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<td>Elizabeth Mary Russ, 8</td>
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<td>Morgan Schrock, 5</td>
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<td>Elle Seichter, 6</td>
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<td>Morgan Sieker, 8</td>
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<td>Dana Ioana Stan, 8</td>
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<td>Emma Marie von der Embse, 7</td>
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<td>Spencer Thomas Webb, 6</td>
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THE 2021 GOVERNOR’S THOMAS EDISON AWARDS FOR EXCELLENCE IN STEM EDUCATION AND STUDENT RESEARCH

Anderson High School, Cincinnati
Anna High School, Anna
Archbishop Alter High School, Kettering
Bellbrook Middle School, Bellbrook
Big Walnut Intermediate School, Sunbury
Bishop Flaget School, Chillicothe
Bishop John King Mussio Central JHS, Steubenville
Bishop John King Mussio Central ES, Steubenville
Bishop Leibold East & West Campus, Dayton
Buchtel Community Learning Center, Akron
Carroll High School, Dayton
Dayton Christian School, Miamisburg
East Richland Christian Schools, St. Clairsville
Ellet Community Learning Center (CLC), Akron
Holy Angels Catholic School, Sidney
Holy Trinity School, Avon
I Promise School, Akron
Incarnate Word Academy, Parma Heights
Innes Community Learning Center (CLC), Akron
Jennings Community Learning Center (CLC), Akron
Kalida High School, Kalida
Lehman Catholic High School, Sidney
Litchfield Community Learning Center (CLC), Akron
Miller South School for the Visual & Performing Arts, Akron
Mother Teresa Catholic Elementary School, Liberty Twp.
National Inventors Hall of Fame STEM MS, Akron
North High School, Akron
Northeastern High School, Springfield
Ottawa Hills Junior/Senior High School, Ottawa Hills
Ridgewood School, Springfield
River Valley High School, Bidwell
SCOPES Academy at Unioto Elementary, Chillicothe
St. Charles Borromeo School, Kettering
St. Helen School, Newbury
St. Jude School, Elyria
St. Mary School, Chardon
St. Mary School, Wooster
St. Peter School, North Ridgeville
St. Raphael School, Bay Village
St. Rose School, Perrysburg
St. Sebastian Parish School, Akron
Sylvania Northview High School, Sylvania
Tippecanoe Middle School, Tipp City
Turpin High School, Cincinnati
University School, Chagrin Falls
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2021 STATE SCIENCE DAY AWARDS

2021 HAROLD C. SHAW MEMORIAL OUTSTANDING SCHOOL AWARD

A most-challenging prize, the celebrated Harold C. Shaw award is based on a rigorous group score of all participants from a school. The late Mr. Shaw (1915-1993) was a high school science teacher and long-time OAS Junior Academy Council member. Above, Mr. Shaw’s family members are posed with the awards at the 2018 State Science Day. Pictured (left to right) are Carolyn Shaw-Lowry, Gwen Shaw-Sailor, and Lisa Shaw-Eilerman.

2021 Harold C. Shaw Awardees

Anna High School – Anna
Archbishop Alter High School – Kettering
Athens High School – The Plains
Beaumont School – Cleveland Heights
Bellbrook Middle School – Bellbrook
Bloom Carroll High School – Carroll
Lincoln High School – Gahanna
Mason High School – Mason

Mason Middle School – Mason
St. Charles Borromeo School – Kettering
St. Columban School – Loveland
Summit Country Day School – Cincinnati
Sylvania Northview High School – Sylvania
Tippecanoe Middle School – Tipp City
University School – Shaker Heights

THE OHIO TUITION TRUST AUTHORITY
2021 COLLEGE ADVANTAGE 529 PLAN AWARD

Alexander Carr – Dublin ………… $1,500 award
Aubrey Ernst – Tipp City
Audrey Jackson – Tipp City
John Trokan – Cincinnati
Alexandra Depenbrock – Ripley
Svara Amol Vaidya – New Albany
Jacob Thomas Fraley – West Milton

Adalyn Eichmiller – Waterford
Lucas D’Cruz – Shaker Heights
Mallory Elizabeth Belisle – Dayton
Graham Tolbert Stecker – Martins Ferry
Owen Daniel Moran – New Albany
Sara Maria Biggs – New Albany
Nissi Olayiwola – New Albany

Ohio’s 529 COLLEGE ADVANTAGE
# 2021 State Science Day Awards

## Thomas Edison Awards

**Sponsored by:** Ohio Development Services Agency

### The 2021 Governor's Thomas Edison Awards for Excellence in...

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<thead>
<tr>
<th>Category</th>
<th>Grades 10-12</th>
<th>Grades 7-9</th>
</tr>
</thead>
</table>
| Biotechnology & Biomedical Techs| 1st – Neha Pasupuleti, Miamisburg – Dayton Regional STEM School  
2nd – Anish Gupta, Sylvania – Sylvania Northview HS 
3rd – Mihir Vador, Dublin – Dublin Jerome HS  | 1st – Ramya Rajan, Mason – Mason MS  
2nd – Leo Szijarto, Polk – Ashland Christian  |
2nd – Anuj Raghavan, Mason – Mason HS  
3rd – Josephine Gehret, Anna – Anna HS  | 1st – Neil Tivakaran, Xenia – Carroll HS  
2nd – Kimberly Burk, Carroll – Bloom Carroll HS  |
| Advanced Materials              | 1st – Audrey Zorman, Euclid – Beaumont School  
2nd – Seth Tivakaran, Xenia – Carroll HS  
3rd – Dylan Seigle, Anna – Anna HS  | 1st – Isabelle Strobel, Akron – National Inventor's HoF MS  
2nd – Amaan Siddiqi, Strongsville – Lake Ridge Academy  |
| Advanced or Alternative Energy  | 1st – Emir Tali, Mason – William Mason HS  
2nd – Gavin McIlvaine, Akron – University School  
3rd – Seth Thompson, Germantown – Dayton Christian School  |  |
| Advanced Materials              | 1st – Mihir Vador, Dublin – Dublin Jerome HS  
2nd – Anuj Raghavan, Mason – Mason HS  
3rd – Josephine Gehret, Anna – Anna HS  |  |

**State Science Day, 2017**

*Image: State Science Day, 2017*
SCHOLARSHIPS AND SPONSORED AWARDS

American Chemical Society Columbus Section - Chemical Sciences Award - 134
American Chemical Society, Columbus Section

American Physiological Society Award - 248
The American Physiological Society, as judged by The Ohio State University Chapter of Sigma Xi

American Water Works Association Award - 072
American Water Works Association, Ohio Section

Animal Science/Veterinary Medicine Award - 256
Martin E. English, DVM

Association of Ohio Music Therapists - Psychology of Music/Music Therapy Award - 189
Association of Ohio Music Therapists

Association of Ohio Pedologists Soil Science Award - 262
Association of Ohio Pedologists

Behavioral Science Award - 028
Ohio Psychological Association; regional psychological associations

Believe in Ohio STEM Entrepreneurship Award - 257
The Ohio Academy of Science

Bobcat Tuition Scholarship in Biological Sciences - 249
Department of Biological Sciences, Ohio University

Broadcom Coding with Commitment - 265
Broadcom Foundation

Broadcom MASTERS - 250
Society for Science & The Public

Columbia Gas of Ohio State Science Day Scholarship - 252
Columbia Gas of Ohio

David J. Horn Stone Lab Entomology Scholarship - 234
The Ohio State University, Department of Entomology

Dick Goddard Honorary Young Atmospheric Scientist Award - 070
American Meteorological Society; Eric Wertz; Northeast Ohio AMS

DoD STEM Leadership Award - 261
Society for Science & The Public

Dr. Lynn E. Elfner Young Scientist Award - 246
The Ohio Academy of Science

Engineering Achievement Award - 059
Engineers Foundation of Ohio

Evolutionary Biology Award - 190
The Ohio State University Chapter of Sigma Xi

EWI Award - 058
EWI

Excellence Award for Civil Engineering Projects - 061
American Society of Civil Engineers, Central Ohio Section & Ohio Council

Food Science & Engineering Award - 031
Nestle Product Technology Center, Marysville

Future Physician - Scientist Award - 148
The Ohio State University, College of Medicine and Public Health and OSU Health Systems

Gordon J. Aubrecht Award for Outstanding Physics Projects - 067
The American Physics Society - Eastern Great Lakes Section & Southern Ohio Section of the American Assoc of Physics Teachers

Governor’s Award for Excellence in Environmental Protection Research - 080
Ohio Environmental Education Fund

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Ohio Development Services Agency

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Thank You Award Sponsors and Judges!

The dedication and expertise of the judges makes it all possible! Above, the judge’s meeting in OSU’s St. John Arena at the 2019 State Science Day.
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Dr. Robert Kroshef s ky, Marysville  
Mr. Joshua Lisheid, Worthington  
Ms. Hailey Main, Powell  
Mr. Garvit Nayyar, Tempe  
Dr. Brian Peebles, Columbus  
Ms. Mary Sanger, Columbus  
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Dr. Mark Ruegsegger, Columbus  
Ms. Nina Tang, Groveport |
| 234 - David J. Horn Stone Lab Entomology Scholarship      | Dr. Joe Raczkowski, Columbus |
| 238 - Nationwide Children's Hospital Research Institute Trainee Association (RITA) | Ms. Mona Aljuhani, Columbus  
Mr. Joseph Beljan, Columbus  
Ms. Alhyah Bennett, Columbus  
Ms. Audrey Bollas, Columbus  
Dr. Rachel Corrigan, Columbus  
Ms. Maria Ford, Hilliard  
Ms. Allison Fowler, Columbus  
Dr. Juan Gonzalez Paredes, Columbus |
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251 - Outstanding Civil/Environmental Engineering Award
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260 - Green Energy Ohio Student Achievement Award in Advanced or Alternative Energy
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262 - Association of Ohio Pedologists Soil Science Award
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264 - UNOH Robotics and Automation Technology Scholarship
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266 - Animal Science/Veterinary Medicine Award
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Thank You Award Sponsors and Judges!
If you attended State Science Day as a student...

We welcome you to

JOIN the State Science Day Alumni Association.

There are no fees to join.

Sign up here: https://form.jotform.com/OhioScience/science-day-alumni

Alumni Benefits.

- Be recognized for career accomplishments. (Annual and lifetime achievement awards.)
- Be portrayed as a career role model to inspire and mentor students.
- Be invited for their professional knowledge to provide benefits to The Ohio Academy of Science such as judging at State, district, and local science days, reviewing manuscripts and annual meeting abstracts for The Ohio Journal of Science, evaluating scholarship applications and STEM education program awards.

Ways to Support STEM education

- Be given the opportunity to support the Annual Fund or specific activities like State Science Day, and the alumni group.
- Be an advocate for STEM education.
- Provide testimonials as to the value of participating in local, District and State Science Days.
- Provide The Ohio Academy of Science with contacts for corporations, foundations, governmental agencies, professional societies, and educational institutions.

This we believe.

Tens of thousands of Ohio students over nearly 90 years have benefited from participation in youth science opportunities including local, District and State Science Days of The Ohio Academy of Science. Early life experiences—like these—get under your skin in a most powerful way. These students’ scientific and engineering knowledge and skills, as well as their academic accomplishments, were fostered by early access to professionals, public recognition of their work, and scholarships. Re-connecting these students—now as alumni—in meaningful STEM-related experiences such as judging and other interactions will bring them personal and professional satisfaction and assist The Ohio Academy of Science.
Martin E. English, DVM, serves as Director of the Junior Academy Council of The Ohio Academy of Science. Dr. English grew up in western Ohio and, at age 12, received early experience by treating an injured horse. In high school he participated in 4-H and also in science fairs, culminating at the State Science Day. He chose his career path in high school while assisting a local veterinarian. After earning his doctor of veterinary medicine degree at The Ohio State University in 1981 he returned to his home town and began a practice. He recently retired—at least from his veterinary practice—after 40 years; however, his multiple advocacy efforts in support of junior high and senior high school STEM education continue at full force.

Mackenzie E. English, MS, Martin’s son, became fascinated with dinosaurs in kindergarten, but never grew out of it. As early as junior high school, Mackenzie was involved in excavations of dinosaur fossils in Montana and Ordovician marine fossils in Ohio. He participated at State Science Day. After earning bachelors’ degrees in geology and archaeology from the University of Cincinnati, and a master’s in biology from Wright State University, Mackenzie worked for 7 years at the Boonshoft Museum of Discovery in Dayton, Ohio. He now teaches middle school gifted science students.

Every scientist, engineer, medical professional, or other individual who entered into a STEM career had, at one point in their background, someone and/or something affect their life in such a way as to start them on their career path. For most of us, it was a series of events and people that were involved in shaping and guiding our lives. Hopefully you will recognize what events have shaped your life, and who has helped guide you along your path.

A Long Career Journey

Martin: I grew up in Tipp City, a small Ohio town, with the typical family dog and assorted small house pets. On Christmas Day when I was twelve, we loaded up in the Jeep, in a foot of snow, and drove to the country where I was introduced to my first horse (event one). She was nothing fancy, but that didn’t matter. I joined a 4-H club and started learning. That summer my mare suffered a severe laceration to her leg. The stable owner and my father were both out of town. My mother called the only other person we knew with horse experience, Officer Ron Ré of the local police department, who recently transferred from the New York City Mounted Police (person one). He provided emergency first aid and helped us find a large-animal veterinarian, Dr. Warren J. Lavelle (person two). After a long series of treatments, the wound finally healed and I had my first real veterinary experience (event two).

As a freshman in high school biology class, I had the opportunity to participate in The Ohio Academy of Science’s Science Day program. Working with what was both familiar and available to me, I chose to study equine parasitology. With guidance from teachers, the local hospital lab, and others, I brought home a Superior from State Science Day (event three). The following summer I began assisting Dr. Lavelle on farm calls and made the decision that this would be my chosen profession. The story from that point on is similar to most other future veterinarians: work for a vet and possibly on a farm or ranch, study hard, and persevere.

I graduated from The Ohio State University College of Veterinary Medicine in 1981, came back to my hometown, and opened my practice. Forty years later, I am retired with my wife (also of 40 years), our family, and of course, horses. The details of that long journey are less important than the message that I hope you will take away from here.

Paying it Forward

Previous “Letter to a Young Scientist” submissions have focused on several themes: publishing your research, collaborating with other researchers, choosing to complete research which answers your own questions, understanding that you will continue learning throughout your lifetime, embracing changes in direction, and recognizing your mentors. All are important topics, but it is the last one that I wish to emphasize. Those individuals who helped guide you
down your path did so voluntarily. At some point in
their past someone helped them, and they made a
conscious effort to pay it forward.

Shortly after opening my practice, I began giving
back to my community by becoming a 4-H horse club
advisor, serving as an EMT on the local emergency
medical services department, and (later) serving as
a local elected official. More relevant to this story is
how I became involved in science education.

My high school alma mater gave up
participation in the Science Day program
around 1990. When my son was a junior in
the same high school, the Science Day was
reinstated. He did participate and I attended. My
son did well and went on to District and State, but
the local event itself was disappointing. Students
received a certificate, a ribbon, and a cookie. Almost
no parents were there to encourage the students,
and school and community recognition was minimal.
The following year, I went to other local professionals,
businesses, and community organizations; they
provided volunteer judges and several hundred
dollars in awards. Sponsors paid the District Science
Day registration fees for those students who qualified.
That same year I found some like-minded
individuals and we formed a non-profit 501(c)(3)
corporation, not just to support the local science fair
but to fund purchases of lab equipment, classroom
technology and materials, field trips, and more. Since
2006, over $110,000 has been donated and distributed
for the benefit of local students and the school. Think what would happen if
each of you were to help do something
similar in your own community.

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After a few years helping to build up the
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participated in the Science Day program.

After a few years helping to build up the local Science Day—and witnessing the benefits it provided to the students—I learned that none of the other 28 public school districts in the four counties near us participated in the Science Day program. When I investigated, the reasons given by teachers and schools were lack of
time, resources, and know-how. With many partners,
a plan was developed to create four county-wide
fairs and invite any public, private, or home-schooled
student to participate. As a result, the 2014 County
Science Days took place with participants from
14 school districts. The County Science Days had
highly qualified judges, thousands of dollars in
awards, and no cost to students. The program has
grown since then, enough that The Ohio Academy
of Science allowed us to form a new OAS District in
2015. As the appointed host institution
representative to the Junior Academy Council, I was able to
learn best practices from other, longer
established, District Science Days, and
apply these practices
to our district. I also volunteered to serve as Director
chairperson) of the Junior Academy Council, a
position I still hold. I hope to continue contributing to
STEM education and student research programs for
many years, but when the time comes that I must slow
down, I have a backup plan. Meet my son Mackenzie!

A New Career Journey Begins

Mackenzie: How many future paleontologists can
one movie create? Never mind the many inaccuracies
throughout the entire franchise. I was five in 1993
when Jurassic Park debuted, and T. rex tee-shirts and
a lunch box were mandatory for kindergarten. Seven
years later, when the Cincinnati Museum Center (CMC)
hosted a Jurassic Park display, I was more excited to
see the real fossils than the fake dinosaurs.

When classes began at Tippecanoe Middle School,
my eighth grade language arts teacher gave us
the assignment to write a letter
to someone who
we would like to
meet. I wrote to
Dr. Glenn Storrs,
the vertebrate
paleontologist at the Cincinnati Museum Center. The
letter satisfied the assignment, and I thought no more
about it until six months later when Dr. Storrs replied.
After the usual words of encouragement, he invited
me to attend the CMC Dinosaur Field School the
following summer. This was a one-week educational,
hands-on excavation of sauropod fossils in Montana.
Who says no to that?

LETTER TO A YOUNG SCIENTIST (CONT.)
Experiencing geology and paleontology in the field is nothing like the classroom, and I wanted more. I joined the Dry Dredgers, a group of professional and amateur paleontologists in Cincinnati, which included University of Cincinnati (UC) Department of Geology professors. They held lectures at UC, and field days around the tristate area. No dinosaurs, but lots of marine fossils. As a high school junior, I participated in our local Science Day. My project involved the preservation of a fossil collected in Montana; in fact, one that I had excavated two-years prior. Many trips to the CMC were required, but the project was completed. It was also agreed that I could return to Montana that summer for a longer period.

High school graduation was followed by five years at UC, which included geology field trips and several more summers of field work in Montana—plus an amazing three weeks in the Himalaya. I completed internships at the CMC in vertebrate and invertebrate paleontology, archaeology, and museum collections management, earning a BS in geology and a BA in archaeology.

My next step was undecided until an accidental conversation with a former biology teacher. His wife, Dr. Lisa Kenyon, was a biology professor at Wright State University. She was looking for a graduate student to assist with research. A master’s degree in biology fit my goals, and a couple meetings later, I was a grad student. The research was in adolescent science education, and involved inquiry-based learning. While my intentions were to become a fossil-collections manager in a museum, I knew that public education was a museum function as well.

My next step was undecided until an accidental conversation with a former biology teacher.... A couple meetings later, I was a grad student.

When the Cincinnati Museum Center hosted a Jurassic Park display, I was more excited to see the real fossils than the fake dinosaurs.

What to do Next?

Armed with another degree, now I needed a job. There were few open museum positions, so I fell back on my newly acquired science education skills and applied for a long-term substitute teacher license. That license remained in “like new” condition because, after only two months, I was hired as a science educator by the Boonshoft Museum of Discovery in Dayton, Ohio. During my first five years at the museum, I provided science demonstrations and instruction to students and adults: both at the museum as well as at school districts around the state. As the employee with the most laboratory background, I became the Laboratory Education Supervisor.

Then COVID-19 happened. The museum closed to the public—but not to education. The museum was already providing some online curriculum content videos to both schools and teachers prior to the pandemic; now that service suddenly became the priority. In the year that followed, I helped produce and render over 100 demonstration and instructional videos. These were made available for schools and students to use as part of their online, at home, instruction.

When schools reopened, many students were far behind in their learning. The museum offered a varied combination of science in box kits, video instruction, and scheduled classroom instruction options to area schools. By coincidence, my hometown school was conducting a Summer Academy in language arts, math, and science. In June 2021, the school contracted for a large assortment of museum services, including a number of classes which I taught. There was a bit of nostalgia being back in my old school. The program went well, and the museum received thankful reviews from the teachers.

Back in My Alma Mater

Then, on August 10th, 2021, I received a text message: the local Board of Education office wanted to meet with me. I wasn’t sure what they needed, but I was taking some vacation days and had the time, so I met with them the next day. Surprise! It was with human resources; this was a job interview. The middle school gifted science teacher had unexpectedly resigned, and they needed an immediate replacement. Several teachers and staff had offered my name for consideration. After much thought and discussion at home that night, I decided this would be a good long-term career move. I completed the necessary paperwork the following day. I provided my letter of resignation to the museum, worked there for three days to complete some projects, and on August 19th I was in the classroom.
Alternative Resident Educator License

You might recognize that I did not have a degree in education, and you would be correct. I renewed my long-term substitute license as a temporary solution while completing the requirements for an Alternative Resident Educator License. This Ohio Department of Education program takes the applicant’s education and career experiences into consideration as an alternative to completing an entire education degree curriculum. This license does require some testing and mentoring; however, it provides schools with the opportunity to hire individuals with different skill sets that, when combined with those of traditional teachers, can provide a richer education for students.

My message to a young reader is this: it is not only important to have goals but also to embrace opportunities when they are offered.

Moving Full Circle

Essentially, I had come full circle: from an eighth grade assignment to an eighth grade teacher in the same school! It was definitely not planned, but well worth the journey—which is certainly not over yet. My message to a young reader is this: it is not only important to have goals but also to embrace opportunities when they are offered. It may not be obvious at first, but change in direction can be a good thing.


Awarded over $2 million dollars from U.S. Department of Education focusing on STEM

DEFIANCE COLLEGE

Visit today ★★★★★ and receive a $1,000 visit grant!
Just like an athletic team, Science Olympiad clubs are coached by teachers, improved by mentors and filled with top talent. Each fall, Science Olympiad releases new rules and teams tackle the 23 STEM-aligned events in pairs, building devices for on-site testing, studying for core knowledge challenges and preparing for rigorous hands-on lab experiments. School teams register annually through their state Science Olympiad chapter at www.soinc.org/join/state-websites

Science Olympiad: The Basics

**DIVISION B**
(Grades 6-9)

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Exploring the World of Science
ROSTER OF ACADEMY JUDGES

Mr. Erik Aagard, Hilliard  
Dr. T.M. Ayodele Adesanya, Columbus  
Ms. Fatemeh Akbari, Toledo  
Dr. Nicolas Alexander, Lexington  
Ms. Stacey Allen, Columbus  
Dr. Sam Andriani, Columbus  
Mr. Adey Anfune, Arlington  
Mrs. Faiza Anjum  
Dr. Robin Anselm, Copley  
Dr. Seyed Ardakani, Ada  
Mrs. Erica Arnold, Galloway  
Ms. Vidheesha Arora, Toledo  
Mr. Bradley Axe, Anna  
Dr. Emily Bain, Charlottesville  
Mr. Christopher Baldwin, Chardon  
Mr. Arnob Banik, Akron  
Mrs. Sejuti Banik, Akron  
Ms. Ashley Barker, Houston  
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Mrs. Christie Cenci, Mt. Orab  
Mr. Younghun Chae, North Canton  
Mr. Prathik Chakravarthy, Columbus  
Mr. Todd Chamberlain, Columbus  
Dr. Miri Chung, Canal Fulton  
Mrs. Vendala Clark, Hilliard  
Dr. Danielle Class, Youngstown  
Mrs. Kaitlyn Cole  
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Ms. Joanne Hancock, North Canton  
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Mrs. Rebecca Karl, Columbia Station  
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Dr. Brian Kowel, Dayton  
Ms. Samantha Kremidas, Longmont  
Mr. Richard Krock, Westlake  
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Dr. Minxuan Lan, Findlay  
Mr. Shane Lanham, Columbus  
Dr. Sara Laux, Westlake  
Mr. Richard Lewis, Dayton  
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Mr. Christopher Lightle, Saint Paris  
Dr. Kelsey Linn, Murrysville  
Dr. Ganneng Liu, Bowling Green  
Dr. Namal Liyanage, Columbus  
Ms. Heyang Long, Columbus  
Dr. Thomas Malloy, Worthington  
Mr. Michael Mansfield, Columbus  
Ms. Jeanette Marshall, Tiffin  
Dr. Andrew Matas, Columbus  
Mr. Gary Mayer, Galloway  
Mr. Micah McCreery, Baltimore  
Mrs. Emily McGirty, Columbus  
Mr. Ben McPherson, Maineville  
Mrs. Donna Mercer, Wauseon
ROSTER OF ACADEMY JUDGES (CONT.)

Ms. Lauren Menke, Versailles
Mrs. Bethany Merillat, Solon
Dr. Brenda Miller, Pickerington
Dr. Diane Minich, New Franklin
Mr. Tom Minor, Dayton
Mr. Joe Monovich, Columbus
Mr. Mathew Moore, Columbus
Mrs. Laura Moore, Lewis center
Mr. Matt Mowrer, Saint Clairsville
Dr. Farhana Mueez, Youngstown
Dr. Bhargavi Mummareddy, Boardman
Ms. Ann Murdock, Sunbury
Mr. Bhaven Naik, Athens
Dr. Colleen Neal, Cincinnati
Mrs. Janae Newswanger
Mr. Andrew Ours, Columbus
Mrs. Praveena Parvathaneni, Dublin
Dr. Ryan Patton
Dr. Ryan Paul, Clinton
Dr. Leeann Pavlek, Columbus
Dr. Melissa Petreaca, Marion
Mrs. Samantha Petreaca, Marion
Mr. Tony Polinori, Columbus
Dr. Gabriela Popa, Zanesville
Dr. Marianne Prevot, Kent
Mrs. Vicki Quinter, Anna
Dr. Srinivas Ramaswamy, Blacklick
Ms. Priya Ravi Ganesh, Columbus
Mrs. Ruth Ray
Dr. Rachael Rayner, Columbus
Dr. Erin Reilly-Sanders
Mr. Prasanta Kumar Sahoo, Dublin
Dr. Ravi Sahu, Dayton
Ms. Karen Sankovich, Dublin
Mrs. Janet Sasso, Gahanna
Mrs. Victoria Sauer, Pueblo
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Dr. Ted Scharf, Cincinnati
Dr. Craig Schluttenhofer, Wilberforce
Mr. Ryan Schmidt, Cincinnati
Ms. Emma Schmidt, Columbus
Mr. Domenico Sciaretta, North Lima
Mr. James B. Short, Bryan
Dr. Amber Singh, Columbus
Dr. Vaibhav Sinha, Columbus
Ms. Aimee Sivillo, Plain City
Mr. Bruce Smith, Zanesfield
Mr. Robert Smith, Columbus
Dr. Michael Smith, Chagrin Falls
Dr. Tabrina Smith, Painesville
Dr. Jenise Snyder, Pepper Pike
Mr. Elliot Sommer, Ravenna
Mrs. Angela Spallinger, Arlington
Ms. Robyn Sprock, Huber Heights
Mr. Siddhant Srivastava
Ms. Monica Staniszewski, Cincinnati
Mr. Tom Stewart, Toledo
Dr. Lydia Stewart-Artz, Columbia
Dr. Rema Suniga, Ada
Ms. Abigail Tanner, New Franklin
Ms. Rachel Thurston, Columbus
Dr. Anita Thyagarajan, Huber Heights
Mrs. Blythe Tipping, Sylvania
Ms. Diana Townsel, Columbus
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Ms. Elizabeth Yirga, Mansfield
Mrs. Brenna Yorimoto, Cuyahoga Falls
Mr. Wan Yu, Akron
Dr. Lita Yu, Pepper Pike
Dr. Feng Yu, Youngstown

Thank You
Judges!

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Ms. Laalitya Acharya
Laalitya Acharya graduated from Mason High School, Mason, in the class of 2021. She is now studying biomedical engineering at Columbia University. During the summer of 2022 she is excited to have an internship at a major pharmaceutical company.

In elementary school, I entered my carrot-density project into our school science fair. Though I didn’t realize it then, that simple act would be the start of a lifelong love for STEM. From there I qualified for my regional science fair and State Science Day 6 times, the International Science and Engineering Fair (ISEF), and was the only finalist from Ohio at the Regeneron Science Talent Search (STS) in 2021. But even more than just awards, SSD gave me the opportunity to meet other like-minded students. Whether it was anxiously awaiting judging, running into old friends yearly, bonding through awful STEM puns (because all the good ones Ar-gon!), or meeting the most esteemed members of Ohio’s science community—State Science Day provided me with an incredible network and lifelong memories with new friends and colleagues. It has truly been an honor to compete alongside the smartest researchers across the state and to now be invited to write this reflection.

I would like to thank my family for cheering me on through all my scientific endeavors. I also thank Mr. Mike Woytek, Dr. Lynn Elfner, Ms. Dorie Gruber, Dr. Martin English, Mr. James Short, Mr. Philip Winchell, Ms. Pam Winchell, and the entire Ohio Academy of Science for their constant support of the students in Ohio. Lastly, I’d like to thank my engineering teacher, Ms. Bethany Jones, for always being a source of ideas, inspiration, and passion. Of course, a huge round-of-applause for all the students, parents, volunteers, and teachers who help to keep our passion for science alive! You are the lifeblood of science fair and I cannot wait to see how you change the world next!

Ms. Lauren Menke
Lauren Menke is an undergraduate student at Case Western Reserve University studying nutrition on the pre-medicine track. She is a four-time State Science Day Alumnus and participated while attending Versailles High School.

The day I was asked to write this blurb was also the day I broke a glass plate in front of a postdoctoral student at one of Cleveland Clinic’s research labs. Needless to say, science is a continual learning process.

When I think back to my first year of the science fair, I think of how much I have learned since then. The practice of reading research papers, synthesizing that information, and developing my own question—and a way to test it—was a challenging but also formative experience. Additionally, presenting my project, which always made me both nervous and excited, was great practice. Now, every time I have to give a presentation, I am able to draw on the skills I first trained through the science fair.

State Science Day not only builds skills but is also motivation for continued discovery. Each time I attended the SSD, I was impressed by others’ projects and became motivated to delve deeper in science. The science fair enabled me to explore a wide range of interests including projects about everything from eggs to insects. As I continue to participate in research, I continue to learn, but the foundations I learned through the science fair remain the same. I am grateful for my experiences from SSD and for the mentors who have encouraged me.

As you continue on your journey through science, don’t be afraid to make mistakes! It is the skills you learn along the way that carry you through in the future.
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The team at the CAS booth at the 2019 SSD.

A row of Battelle judges at the 2019 SSD.

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### ROSTER OF STUDENT EXHIBITORS

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<tr>
<th>Name</th>
<th>Grade</th>
<th>Project Details</th>
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<tr>
<td>MS LAASYA ACHARYA</td>
<td>Grade 9</td>
<td>Individual project, William Mason HS, Mason, Ceres: A Novel Device Utilizing Raspberry Pi &amp; Neural Networks to Detect Crop Diseases Using Imaging</td>
</tr>
<tr>
<td>MR WILLIAM E ALLEN</td>
<td>Grade 9</td>
<td>Individual project, Buckeye Valley Local HS, Delaware, Interactions of Various Algae Species and Phosphate</td>
</tr>
<tr>
<td>MR MATT E ADAMS</td>
<td>Grade 12</td>
<td>Team project, Northwestern HS, W Salem, Proof of Principle: Using Dinoflagellates as a Sustainable Light Source</td>
</tr>
<tr>
<td>MR JOHN ADAMSKY</td>
<td>Grade 6</td>
<td>Individual project, St Mary Central, Martins Ferry, What Food Do Worms Compost The Quickest?</td>
</tr>
<tr>
<td>MR ADOLPHUS EKOW ADDISON</td>
<td>Grade 12</td>
<td>Individual project, Eastland Career Center, Groveport, Growth of Tissue in Biodegradable Scaffolds and Testing Functionality Through Mechanical Testing</td>
</tr>
<tr>
<td>MS QUINN ADKINS</td>
<td>Grade 5</td>
<td>Individual project, St Mary Immaculate Conception, Wooster, Homemade Water Filtration</td>
</tr>
<tr>
<td>MR JACK RYAN AGNEW</td>
<td>Grade 11</td>
<td>Individual project, Carroll HS, Dayton, GPS Based Dog Containment System</td>
</tr>
<tr>
<td>MS QUEEN AKUZWE</td>
<td>Grade 7</td>
<td>Individual project, Bishop Leibold E &amp; W Campus, Dayton, Can You Find It?</td>
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<tr>
<td>MS WALTERS ALBERT</td>
<td>Grade 5</td>
<td>Team project, New Albany Intermediate School, New Albany, Eggsheal Corrosion Experiment</td>
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<tr>
<td>MR MICAH GLEN ARBOGAST</td>
<td>Grade 8</td>
<td>Individual project, Butler MS, Arcanum, Effect of Electricity on the Strength of Electromagnets</td>
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<tr>
<td>MS SYDNEY ARN</td>
<td>Grade 8</td>
<td>Individual project, St Michael Consolidated, Ripley, Let's Get Swinging!</td>
</tr>
<tr>
<td>MS YARA ALHAJJI</td>
<td>Grade 7</td>
<td>Individual project, Toledo Islamic Academy, Sylvania, Can a Robotic Arm Carry Weight like a Human Arm?</td>
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<tr>
<td>MS ASHLEY ALLEN</td>
<td>Grade 5</td>
<td>Team project, Independence ES, Liberty Twp, Rotten to the Core</td>
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<tr>
<td>MS GABRIELLE DENNYALE ALLEN</td>
<td>Grade 11</td>
<td>Individual project, Miami Valley Career Tech Ctr, Clayton, Nutrition behind The Female Athlete Triad</td>
</tr>
<tr>
<td>MR WILLIAM E ALLEN</td>
<td>Grade 9</td>
<td>Individual project, Buckeye Valley Local HS, Delaware, Interactions of Various Algae Species and Phosphate</td>
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<tr>
<td>MS SHAYNA NICOLE ALLSHOUSE</td>
<td>Grade 12</td>
<td>Team project, Northwestern HS, W Salem, Proof of Principle: Using Dinoflagellates as a Sustainable Light Source</td>
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<tr>
<td>MS ANNIA AMEUR</td>
<td>Grade 5</td>
<td>Individual project, Ridgewood School, Springfield, The One and Only Bacteria</td>
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<tr>
<td>MS GAURI ANIL</td>
<td>Grade 7</td>
<td>Team project, Perrysburg JS, Perrysburg, Effects of Ethnicity on Fingerprints</td>
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<tr>
<td>MR PEYTON JAMES ARTHURS</td>
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<tr>
<td>MS NURSE HATUN ARSLANYILMAZ</td>
<td>Grade 11</td>
<td>Individual project, Canfield HS, Canfield, Brain's Reaction to Video Games</td>
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<td>MS ELLA ASHWORTH</td>
<td>Grade 9</td>
<td>Individual project, Northeastern HS, Springfield, Overcoming Genetics</td>
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<tr>
<td>MR EMERSON WESLEY BABIAN</td>
<td>Grade 7</td>
<td>Individual project, Ridgewood School, Springfield, Die Bacteria Die!</td>
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<tr>
<td>MR JASON PATRICK BACHMANN</td>
<td>Grade 8</td>
<td>Individual project, St Columban, Loveland, Virtual Reality's Real Health Benefits</td>
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<tr>
<td>MR ANDREW JAMES BADEN</td>
<td>Grade 11</td>
<td>Individual project, Patrick Henry HS, Hamler, Comparison of Electrolytes for the Purpose of CO₂ Reduction</td>
</tr>
<tr>
<td>MS TAYLOR BAER</td>
<td>Grade 11</td>
<td>Individual project, Sylvaia Northview HS, Sylvania, The Behavioral Effects of Pentylone on Adult Zebrafish</td>
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<tr>
<td>MS ADRIANA GAIL BARRY</td>
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<td>Individual project, St Paul, Westerville, Which Mask Will Hold the Least Amount of Bacteria Colonies?</td>
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<tr>
<td>MS MEGAN BASRUR</td>
<td>Grade 11</td>
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<tr>
<td>MR TARUN BATCHU</td>
<td>Grade 8</td>
<td>Individual project, Global Impact STEM Academy, Springfield, Hydroponics Comparison</td>
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<tr>
<td>MS ALYSSA BAYER</td>
<td>Grade 10</td>
<td>Individual project, Lehman Catholic HS, Sidney, Effects of Magnets on Batteries</td>
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<tr>
<td>MR BRIAN ANTHONY BAUMANN</td>
<td>Grade 9</td>
<td>Individual project, Hyatts MS, Powell, The Effect of a Microbial Propagation of High Lipid Microalgae with Penicillium chrysogenum towards Developing an Ultra-efficient Fungi-Algae Compound Potent of Yielding Optimal Thermal Stability against Hydrocarbon in (SOM)</td>
</tr>
<tr>
<td>MS ALAINA MARIE BELL</td>
<td>Grade 9</td>
<td>Individual project, Bloom Carroll HS, Carroll, Growing Microgreens With Reflected Light</td>
</tr>
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MR JAMES BLAINE BELL  
Grade: 11 Individual project  
Hilltop HS, West Unity  
Analyzing Degradation Trends in Compostable Through Various Compost Techniques

MS EMILY TAYLOR BERDIS  
Grade: 11 Individual project  
West Geauga HS, Chesterland  
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MR JULIAN BERGER  
Grade: 10 Individual project  
The University School, Chagrin Falls  
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MR ISAAC NAIL BERGMAN  
Grade: 7 Individual project  
St Agatha, Columbus  
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MS GRACE M BEDE  
Grade: 12 Individual project  
Eastland Career Center, Groveport  
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MR WILLIAM JAMES BERSCHBACK  
Grade: 12 Individual project  
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MS GRACE MARGARET BRAUN  
Grade: 11 Individual project  
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MR CONNOR JAMES BRODERICK  
Grade: 10 Team project  
Dayton Regional STEM School, Kettering  
A Step In The Right Direction

MR EVAN BILLS  
Grade: 7 Individual project  
Buckeye Valley Local MS, Delaware  
Music & Plants

MS REAGAN BING  
Grade: 7 Individual project  
Mother Teresa Catholic, Liberty Twp  
Does Writing or Typing Help Someone Better Remember Information?

MS OLIVIA PAIGE BIRKLE  
Grade: 7 Individual project  
Mother Teresa Catholic, Liberty Twp  
What type of Whitening Process works the Best?

MS ISABELLA FAITH BIXLER  
Grade: 8 Individual project  
Birchwood School, Cleveland  
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MS EDNA BOADI  
Grade: 12 Individual project  
Eastland Career Center, Groveport  
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MS ADDILYN OLIVIA BOCK  
Grade: 5 Team project  
Felicity Franklin MS, Felicity  
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MS WINNIE MAE BODIN  
Grade: 8 Individual project  
Benjamin Logan MS, Bellefontaine  
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MS ASANTEWA BONNA  
Grade: 12 Individual project  
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MR GIANCARLO FRANCESCO BONTEMPO  
Grade: 8 Individual project  
St Albert The Great, N Royalton  
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MR HADDON BOONE  
Grade: 9 Individual project  
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MR JACKSON BORTZ-DRUFFEL  
Grade: 6 Individual project  
Terrace Park ES, Terrace Park  
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MR WILL BOSWELL  
Grade: 7 Individual project  
St Mary, Lancaster  
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MS MADELINE BOWSER  
Grade: 5 Individual project  
New Albany Intermediate School, New Albany  
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MR AUSTIN JOHN BOYCE  
Grade: 7 Individual project  
Buckeye Valley Local MS, Delaware  
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MS MCKENNA SOPHIE BOYD  
Grade: 5 Individual project  
Northwestern ES, W Salem  
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MS ERIN BRADFORD  
Grade: 9 Individual project  
Dayton Regional STEM School, Kettering  
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MS MARGARET ANNE BRADY  
Grade: 10 Individual project  
Beaumont School, Cleveland Hts  
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MR HAYDEN L BRATTON  
Grade: 12 Individual project  
Miami Valley Career Tech Ctr, Clayton  
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MS KENNEDY LANE BREHM  
Grade: 11 Individual project  
Bloom Carroll HS, Carroll  
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MR IAN C BROHIER  
Grade: 8 Individual project  
The University School, Shaker Hts  
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MR JAGGER JORDAN BROWN  
Grade: 12 Team project  
Northwestern HS, W Salem  
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MR SAMUEL WALTER BROWN  
Grade: 6 Individual project  
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MS SAVANNAH KEVAY BROWN  
Grade: 5 Team project  
Miami East ES, Casstown  
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MS LUCY MARIE BUHRMAN  
Grade: 10 Individual project  
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MS LEXI MALAIKA BUMAH
Grade: 9 Individual project
Dayton Regional STEM School, Kettering
A New Waterproof Compression Bra for Patients Post-Lumpectomy

MR JAIDEN LLOYD BURKHOLDER
Grade: 8 Individual project
Birchwood School, Cleveland
Do Dryer Balls Really Reduce Drying Time?

MS PRESLEY BURKHOLDER
Grade: 5 Individual project
Birchwood School, Cleveland
Which Variety of Amish Popcorn Yields the Largest Percentage of Kernels That Pop per Batch?

MS TESSA LIN BUZZARD
Grade: 5 Individual project
Northwestern ES, W Salem
Some Things are Worth Melting For

MR SAM BYRD
Grade: 8 Individual project
Bishop Flaget, Chillicothe
Does Plant Waste or Cow Manure Produce More Energy?

MS ELLA GRACE CALVIN
Grade: 12 Individual project
Hilltop HS, West Unity
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MS AMELIA GRACE CAMPBELL
Grade: 11 Individual project
Tippecanoe HS, Tipp City
Pro or No Biotics

MR JOSHUA DAVID CAMPBELL
Grade: 7 Individual project
All Saints, Cincinnati
Reaction Time: Are You Ready for it?

MS SARAH HELEN CAMPBELL
Grade: 10 Individual project
Carroll HS, Dayton
Earthworms’ Effect on the Decomposition of Plastic

MR ALEXANDER CARR
Grade: 7 Individual project
Willard Grizzell MS, Dublin
Bubbles to the Maximum

MS ISHIKA CHAND
Grade: 7 Individual project
Birchwood School, Cleveland
Compost vs Fertilizer

MR JACK JAMIE CHARLTON
Grade: 7 Individual project
All Saints, Cincinnati
Out of the Corner of My Eye

MS GRACE CHEN
Grade: 11 Individual project
Mentor HS, Mentor
The Effects of Pyrolysis on Upcycling Polyvinyl Chloride (PVC) in Gloves Through Reattaining Hydrochloric Acid (HCl) For Higher-Value Applications

MS JASMINE CHEN
Grade: 8 Individual project
Birchwood School, Cleveland
Making Bioplastic Bags

MS SNEHAL CHOUDHURY
Grade: 12 Individual project
Jackson HS, Massillon
A Pandas Outlook on Correlations Between Societal and Health Factors

MS CARLIE N CLARK
Grade: 8 Individual project
Zane Trace HS, Chillicothe
Get the Benzene Out

MS CIARA MARIE CLAYTON
Grade: 9 Individual project
Dayton Regional STEM School, Kettering
The Effect of Different Shoes on Your Body Posture

MS ALEXIS CLOUSE
Grade: 8 Individual project
Holy Trinity, Somerset
Which Type of Grass Grows the Fastest?

MR CHARLEY WYATT CLYNE
Grade: 10 Team project
Zane Trace HS, Chillicothe
STF Armor: Application of Shear Thickening Fluid to Strengthen Woven Fabrics

MR JACK AARON COCH
Grade: 8 Individual project
Bishop Leibold E & W Campus, Dayton
Runoff on pH

MR GRANT DLUGOS CONGDON
Grade: 11 Individual project
West Geauga HS, Chesterland
Analyzing Electromyography and Acceleration Data from Cervical Rotation and Flexation to Drive an Electric Wheelchair

MR QUINN CONLEY
Grade: 5 Individual project
Northwestern ES, W Salem
How Far Will It Roll?

MS KACY BRIANNE CONNOLLY
Grade: 12 Individual project
Hilltop HS, West Unity
Combinations of Benzoyl Peroxide and Natural Agents on Bacteria Prevention

MX JAY COOKE
Grade: 7 Individual project
National Inventor's Hall of Fame STEM
MS, Akron
Artificial or Natural?

MR CAEDON COOPER
Grade: 9 Individual project
Carroll HS, Dayton
The Salinity in Various Bodies of Water and its Negative Effects

MR COLLIN RICHARD COOPER
Grade: 8 Individual project
Worthingway MS, Worthington
Are Dogs "Born to be Wild"?

MS JULIA CORCORAN
Grade: 6 Individual project
Bishop Flaget, Chillicothe
What Type of Seedling Emerges Fastest?

MR ETHAN CORSMO
Grade: 7 Individual project
St Gertrude, Cincinnati
The Breakdown on Infill Pattern Strength

MR CARLTON GOULD CORT
Grade: 12 Individual project
The University School, Chagrin Falls
Designing and Testing a Prototype Automatic Electronic Control System for Active Magnetic Levitation of a Ferromagnet Toward Magnetically Deflected Ballistic Mass Technology

MS BAILEY ANNE COTTERMAN
Grade: 6 Individual project
Hilltop HS, West Unity
Which Brand of Popcorn Leaves the Most Unpopped Kernels?

MS MORGAN COVEY
Grade: 8 Individual project
St Mary Immaculate Conception, Wooster
Heavy Metals

MR OWEN ALEXANDER THOMA CRABTREE
Grade: 7 Individual project
St Benedict Catholic School, Toledo
How does Temperature Affect the Viscosity of Synthetic and Conventional Motor Oil?

MR KELAN BRODERIK CRAMER
Grade: 9 Individual project
Xenia HS, Xenia
Car Hood Speed

MR ISAAC CRAWFORD
Grade: 8 Individual project
Bishop Flaget, Chillicothe
Do Radishes Grow Better From Seed Tape?
Grade: 7 Individual project
Upper Arlington HS, Upper Arlington
Development of a Generic Nanophotonic Processor using Programmable Photonic Integrated Circuits (PPICs)

MS MARY MCKENZIE CUNNINGHAM
Grade: 8 Individual project
Ridgewood School, Springfield
Soil Remediation with Phytoremediation

MS LILLIAN DAKIN
Grade: 6 Individual project
Cherokee ES, Liberty Township
Electromagnetic Induction and the Effects of Various Material Obstructions

MR BRENNAN P DALTON
Grade: 8 Individual project
St Paul, Westerville
The Effect of Length of Helicopter Blade on the Amount of Time to Generate Lift

MS DELANA LEIGH DAMMAN
Grade: 10 Individual project
Pettisville HS, Pettisville
The Comparison of Protein, Solids, and Fats in Goat and Cow Milk

MR EVAN DAN
Grade: 8 Individual project
Solon MS, Solon
What are the Effects of Phase Change Materials on the Temperature of an Enclosed Area

MR JAEDEN MICHAEL DANCY
Grade: 8 Individual project
National Inventor’s Hall of Fame STEM MS, Akron
How Different Types of Light Affect Plant Growth

MS EMMA DANDO
Grade: 8 Individual project
St Raphael, Bay Village
See the Vitamin C

MR JONATHAN JOSEPH DARMETKO
Grade: 7 Individual project
Academy of St Bartholomew, Middleburg Hts
How the Strength of a Magnet Varies with Temperature

MR VARUN DAS
Grade: 8 Individual project
Liberty JS, Liberty Twp
Saving Migratory Animals

MS KATHERINE ELIZABETH DAUGHERTY
Grade: 11 Individual project
Miami Valley Career Tech Ctr, Clayton
The Effects of Whole Body Vibration and Post Activation Potentiation on Anaerobic Power and Capacity

MS CECILIIJA DAUTOVIC
Grade: 9 Individual project
Beaumont School, Cleveland Hts
The Erosion Notion

MS CAITLYN DEDIC
Grade: 6 Team project
Holy Trinity, Avon
Hearing Protection vs Hearing Protection: Which one is the most effective?

MS SUNDAY DELARM
Grade: 6 Individual project
Holy Trinity, Avon
Rise Up!

MR JOHAN ADAM DEMESSIE
Grade: 11 Individual project
William Mason HS, Mason
Removal of Arsenic(III) and Chromium (VI) from Contaminated Water Using Novel Chitosan Coated Polycamide Adsorbent with EDTA Regeneration

MS ALEXANDRA DEPENBROCK
Grade: 6 Individual project
St Michael Consolidated, Ripley
Near or Far, Our Eyes are Amazing!

MS SOPHIA DESAMITO
Grade: 10 Individual project
Beaumont School, Cleveland Hts
Different Types of Soaps/Cleansers Against Escherichia coli

MR JOSEPH MITCHELL DETERS
Grade: 6 Individual project
Terrace Park ES, Terrace Park
Ready Set Dry

MR MATTHEW DENNIS DEVINE
Grade: 10 Individual project
The University School, Chagrin Falls
Ultraviolet: A Clean Way to Clean Up Invasive Species; Using Ultraviolet Light to Degrade Adhesives Similar to Byssal Thread Adhesives

MS DEANNA DEVLDER
Grade: 7 Individual project
St Columban, Loveland
Blowing in the Wind: How do Different Blade Types, Number of Blades, and Wind Speeds Affect the Power Output of a Wind Turbine

MR JACKSON DeWITT
Grade: 8 Individual project
Global Impact STEM Academy, Springfield
How much Nitrate and Phosphate will Leach into Groundwater if the Application Rates of the Mono-Ammonium Phosphate Fertilizer are Changed?

MR LAKSH DHIR
Grade: 7 Individual project
Dublin Coffman HS, Dublin
An in vitro Comparative Study on Antimicrobial Effectiveness of Phytomedicines Against the Growth of Acne-Inducing Bacteria

MR AARON FRANCIS DORSEY
Grade: 7 Individual project
St Gertrude, Cincinnati
The Green Light: What Type of Lighting Is Best for Growing Basil Plants Indoors?

MR LUKE MICHAEL DOSECK
Grade: 10 Team project
Dayton Regional STEM School, Kettering
Revising a Domestic Hydroelectric System

MS ISABELLA DOSS
Grade: 6 Individual project
Holy Family, Stow
The Effects of Soil Based Probiotics on Soybean Growth

MR WILL DRAGO
Grade: 7 Individual project
St Michael Consolidated, Ripley
Does Trailer Weight Distribution Matter?

MS KIERSTIN ELIZABETH DREW
Grade: 7 Individual project
DeColores Montessori, Greenville
Chicken Hot Mess

MR MITCHELL DUNLAP
Grade: 7 Individual project
Fairland MS, Proctorville
Which Water Bottle is the Coolest?

MR SAMUEL DUSEK
Grade: 9 Individual project
DeColores Montessori, Greenville
Conductivity of Water with Different Salutes

MR LEO JOSEPH DUVARNEY
Grade: 10 Individual project
Upper Arlington HS, Upper Arlington
The Correlation Between Classical Music and Short Term Memory

MS KENDALL ECHEMAN
Grade: 5 Individual project
L T Ball Intermediate ES, Tipp City
Evaluation of Wipes and Germ Wipes
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<td>Anna HS, Anna</td>
<td>Time vs Distance (How Each Affects Light Depend Reactions)</td>
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<td>MR JOHN EIGINGER</td>
<td>St Francis DeSales, Newark</td>
<td>Are Household Disinfectants Equally Effective?</td>
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<td>Birchwood School, Cleveland</td>
<td>Eco-friendly Concrete – The Effects of Plant-based and Plastic Admixtures on Its Mechanical Properties</td>
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<td>Loft Angle and Distance</td>
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<td>MS Kiera Grace Elliott</td>
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<td>Can the Alteration of Stride Frequency Enhance a Runner’s Performance?</td>
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<td>MS Caroline Kate Endsley</td>
<td>Liberty Union MS, Baltimore</td>
<td>The Effects of Sleep on a Child’s Mental Health</td>
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<td>MS Claire M English</td>
<td>Mentor HS, Mentor</td>
<td>The Effects of eIF2A on the Expression of Adipokines in Brown Adipose Tissue of Mice</td>
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<td>Tippecanoe MS, Tipp City</td>
<td>Determining How Total Dissolved Solids (TDS) Affects Water Taste</td>
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<td>MS Gabrielle Celeste Ernst</td>
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<td>Which Vitamin Will it Be?</td>
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<td>MR Griffin Ernst</td>
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<td>Engagement with Integrin CD11b for Modulating Tumor-Associated Myeloid Cells in Pancreatic Cancer</td>
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<td>St Thomas More, Cincinnati</td>
<td>Dating Native American Artifacts</td>
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<td>Alliance HS, Alliance</td>
<td>The Impact of Facemasks on Emotion Recognition</td>
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<td>MR Kareem K Fareed</td>
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<td>Using a Convolutional NN to Diagnose Parkinson’s Disease</td>
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<td>MS Faith Marie Feehan</td>
<td>Patrick Henry HS, Hamler</td>
<td>Pearly Whites, Which Whitening Product Whiten the Best?</td>
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<td>MR Tyler J Feix</td>
<td>Bellbrook MS, Bellbrook</td>
<td>Electromagnetic Radiation and Cell Phone Use</td>
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<td>MR Savannah Ferguson</td>
<td>Dayton Regional STEM School, Kettering</td>
<td>Water: Is it Really the Best?</td>
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<td>MR Andrew Joseph Fink</td>
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<td>Testing the Effectiveness of Eco-Friendly Cleaners on Bacterial Growth</td>
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<td>MS Josephine Flaute</td>
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<td>Do Cats have a Preference for the Food they Eat depending on the Expense of the Food</td>
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<td>MS Isabel Flores</td>
<td>Lehman Catholic HS, Sidney</td>
<td>Organic vs Synthetic: Which Pesticide Works Best at Deterring Insects?</td>
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<td>MR Raymond Flowers</td>
<td>Sylvania Northview HS, Sylvania</td>
<td>Building Better Loot Boxes With Cardano</td>
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<td>Bloom Carroll HS, Carroll</td>
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<td>MS Lyza Ann Forson</td>
<td>Urbana HS, Urbana</td>
<td>The Destructive Powers of Acid Rain</td>
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<td>Sacred Heart of Jesus, Wadsworth</td>
<td>Conventional versus Organic Detergent and its Effects on Worm Health</td>
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<td>MS Reina S Frame</td>
<td>Miami Valley Career Tech Ctr, Clayton</td>
<td>Does a Jump Help with Reaction Time?</td>
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<td>MR John Thomas Franklin</td>
<td>Ottawa Hills Junior/Senior HS, Ottawa Hills</td>
<td>The Quest to Reduce Iron Stress: The Relationship Between Plant Iron Stress, Fe Uptake Rate, and Concentration of IR1 in Marigolds</td>
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<td>Athens MS, Athens</td>
<td>Gluten vs. Gluten-Free: Which Molds First?</td>
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<td>Student Athletes and Anxiety</td>
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<td>MR Adam Clay Fronduti</td>
<td>Rutherford B Hayes HS, Delaware</td>
<td>Jazzassist: a Fusion of a Cultural Artform and Technology</td>
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<td>MS Kensie Nicole Funk</td>
<td>Bishop Leibold E &amp; W Campus, Dayton</td>
<td>Do You See What I See? Do You Hear What I Hear?</td>
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<td>MR Nicholas Funk</td>
<td>Global Impact STEM Academy, Springfield</td>
<td>How does Basil Grow in Different Soils?</td>
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<tr>
<td>MS Lucy Furjanic</td>
<td>Beaumont School, Cleveland Hts</td>
<td>How the Smell of Peppermint Oil Affects Memorization</td>
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ROSTER OF STUDENT EXHIBITORS

MS JANU GADTHULA  
Grade: 11 Team project  
William Mason HS, Mason  
Clean Energy with an Affordable Hydrogen Fuel Cell

MR LUCA WALTER GAGLIANO  
Grade: 11 Individual project  
Athens HS, The Plains  
Growing Sustainable Packaging with Mycelium and Agricultural Waste

MS GAYATHRI GANDURI  
Grade: 7 Individual project  
Olentangy Shanahan MS, Lewis Center  
Which Grows Faster: A Mint Plant Grown by Soil or a Deep Water Culture System?

MR JACOB GARDNER  
Grade: 7 Individual project  
Ashland Christian, Ashland  
Does Listening to Music Improve Memory

MR NATHAN GAY  
Grade: 7 Individual project  
St Francis Xavier, Medina  
The Gauss Rifle: The Power of Magnets

MR NYKAHI GAY  
Grade: 12 Individual project  
Dunbar HS, Dayton  
Potential Ecological Benefit of Amur Honeysuckle

MR MICHAEL FANGZHOU GE  
Grade: 9 Individual project  
Ursuline, Youngstown  
Taming Cyanobacteria Blooms by Using Bean Plants

MS JOSEPHINE MANDY GEHRET  
Grade: 12 Individual project  
Anna HS, Anna  
A Meta-Data Analysis Into the Correlation Between Nulliparous, Full Term, Singleton, Head-Down Cesarean Sections and Infant Mortality Rate

MR NICHOLAS JAMES GELLNER  
Grade: 7 Individual project  
Mother Teresa Catholic, Liberty Twp  
Is Dry Ice a better Alternative to Ice or Ice Packs

MS BROOKE GEMECHU  
Grade: 8 Individual project  
Birchwood School, Cleveland  
Iron Man: Creating A Bionic "Repulsor" Gauntlet Using Myographic Technology

MR ADITH JOSHUA GEORGE  
Grade: 12 Individual project  
Lehman Catholic HS, Sidney  
Using Data to Analyze Goalkeeper Performance

MS MAGGIE LENORE GERSCHUTZ  
Grade: 7 Individual project  
Sacred Heart of Jesus, Wadsworth  
Effects of Lead Amounts in Drinking Water When Using Activated Carbon Filters

MS NATALIE ANNE GERSTENBERGER  
Grade: 8 Individual project  
St Helen, Newbury  
Meditation in the Fight Against Test Anxiety

MS LAUREN LOUISE GIESIGE  
Grade: 7 Individual project  
Ridgewood School, Springfield  
Let It Grow!

MS LAUREN LOUISE GIESIGE  
Grade: 7 Individual project  
Patrick Henry MS, Hamler  
Does Introducing Creep Feed Before Weaning Helps Growth in Piglets

MR JOSIAH RICHARD GILMAN  
Grade: 10 Individual project  
Northwestern HS, W Salem  
The Effects of Topically Diverse Visual Stimuli on Male Highschool Students

MS CLAIRE KATHRYN GOEKE  
Grade: 7 Individual project  
St Charles Borromeo, Kettering  
Liquids Affecting Teeth

MS LAYA GOKULA  
Grade: 11 Individual project  
Maumee Valley Country Day, Toledo  
Evaluation of Outcomes of Intertrochanteric Fractures Treated with Different Methods in Elderly

MR CHARLES RUSSELL GOOCH  
Grade: 5 Individual project  
East Richland Christian School, St Clairsville  
The Effect of Different Designs on Derby Car Speed

MS SAMANTHA GORNEY  
Grade: 6 Individual project  
Holy Trinity, Avon  
Om Nom Nom...Cookies!

MS CHARLOTTE HUAFENG GRAHAM  
Grade: 12 Individual project  
Benjamin Logan HS, Bellefontaine  
Microplastic Contamination in Local Water and Sediment

MS CALEY MICHEAL GREY  
Grade: 7 Team project  
Bethel JS, Tipp City  
Transmitting Sound using Light

MS KAITLYN JOY GRIFFEEY  
Grade: 8 Individual project  
Ashland Christian, Ashland  
"Does the Type of Feed Affect the Quality of the Goat's Milk?"

MS AMANDA RENEE GRIMM  
Grade: 10 Individual project  
Tri-Village HS, New Madison  
The Comparison of Penicillin and Natural Antimicrobials on the Inhibition on Bacteria

MR DOMINIC JOSEPH GUIDETTI  
Grade: 12 Team project  
Northwestern HS, W Salem  
Side to Side Motion Target

MS CORA LILY GUTIERREZ  
Grade: 7 Individual project  
Tri-Village HS, New Madison  
Will Different Liquids Affect the Weight of Gummy Bears?

MS CARSYN KAYLENE HAGANS  
Grade: 12 Individual project  
Archbold HS, Archbold  
The Effect of Light Pollution on Anabaena and Microcystis Growth

MR ELLIOTT JAYMES HAGER  
Grade: 12 Individual project  
West Liberty-Salem MS/HS, W Liberty  
Real World Application of the Software Development Lifecycle

MS TAYLOR JADE HALEY  
Grade: 12 Individual project  
Northwestern HS, W Salem  
Surface Temperature on Diabetic Patients

MR CHASE MICHAEL HAMILTON  
Grade: 9 Individual project  
Incarnate Word Academy, Parma Hts  
4 Letter Pattern In Multiple Choice

MS LYDIA HAMILTON  
Grade: 6 Team project  
Felicity Franklin MS, Felicity  
Smacktown in Stain Town

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<td>MS XINRUI HAN</td>
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<td>Athens HS, The Plains</td>
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<td>Home Schooled - District 09, Salt in the Water? A Study of Variables Effecting Chloride Levels in Tributaries from Excessive use of Road Salt</td>
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<td>MS KA JAYESH HARI</td>
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<td>Upper Arlington HS, Upper Arlington</td>
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<td>MS LANI GRACE HOLLINGER</td>
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<td>Team project</td>
<td>Arcanum HS, Arcanum</td>
<td>Apple vs. Android</td>
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<td>MS MAKENNA GRACE HOMAN</td>
<td>12</td>
<td>Team project</td>
<td>Upper Valley, Piqua</td>
<td>Sleep vs. Functionality</td>
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<td>MS REESE NOELLE HORNICK</td>
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<td>Individual project</td>
<td>Archbishop Alter HS, Kettering</td>
<td>Testing Extra-Sensory Perception in Humans</td>
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<td>MS TAYLOR KAY Houser</td>
<td>6</td>
<td>Individual project</td>
<td>Miami Valley Career Tech Ctr, Clayton</td>
<td>How Positive and Negative Energy Affects Athletes Performances</td>
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<td>MS JESSICA ANN HOUSEMAN</td>
<td>11</td>
<td>Individual project</td>
<td>Miami Valley Career Tech Ctr, Clayton</td>
<td>Creating and Manipulating Warm Foam</td>
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<td>MS XAVIER HOWARD</td>
<td>5</td>
<td>Individual project</td>
<td>L T Ball Intermediate ES, Tipp City</td>
<td>Creating and Manipulating Warm Foam</td>
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<td>MS LILLIAN HOWE</td>
<td>12</td>
<td>Individual project</td>
<td>Sylvania Southview HS, Sylvania</td>
<td>The Correlation between Speed and Flexibility</td>
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<td>MS PAIGE NICOLE HUIET</td>
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<td>Individual project</td>
<td>St Columban, Loveland</td>
<td>Impact of Fire Retardant V2</td>
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<td>MS KENDRA HUMMEL</td>
<td>12</td>
<td>Individual project</td>
<td>Northwestern HS, W Salem</td>
<td>Induced Liver Fibrosis</td>
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<tr>
<td>Name</td>
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<td>MR Landon Myles Hunter</td>
<td>8</td>
<td>Individual project: Ridgewood School, Springfield. Which Organic Waste Product do Worms Eat the Fastest?</td>
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<td>MS Danyel Nicol Hyatt</td>
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<td>Individual project: Northwestern HS, W Salem. Minutiae in Fingerprints</td>
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<td>MS Anje Jessica Ikuzwe</td>
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<td>Individual project: Bishop Leibold E &amp; W Campus, Dayton. Heat It Up</td>
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<td>MS Haniyah Imran</td>
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<td>Individual project: Mentor HS, Mentor. Nurse Habit Changes due to COVID-19 Pandemic</td>
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<td>MS Audrey Jackson</td>
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<td>Team project: Tippecanoe MS, Tipp City. Determining how Total Dissolved Solids (TDS) Affects Water Taste</td>
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<td>MS Danielle L Jackson</td>
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<td>Individual project: Bloom Carroll HS, Carroll. Are Fingerprint Pattern and Gender Independent?</td>
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<td>MS Maddie Josephine Jackson</td>
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<td>Individual project: Bloom Carroll HS, Carroll. The Affects of Reading on Blood Pressure</td>
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<td>MS Nathaniel D Jackson</td>
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<td>MS Rebecca Jacob</td>
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<td>Individual project: Solon MS, Solon. How does the Negative Mold of a Rose Petal effect a Solar Cell’s Efficiency?</td>
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<td>MS Hailey Ann Jankord</td>
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<td>Individual project: Dayton Christian School, Miamisburg. Egg Substitutes</td>
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<td>MS Lydia Kay Jarrell</td>
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<td>Team project: Zane Trace MS, Chillicothe. Which Nail Polish?</td>
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<td>MR Gabriel Jarwannakorn</td>
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<td>Individual project: SCOPEs Academy at Unioto Elementary, Chillicothe. Single, Double, Triple, Dingers!—How Different Types of Baseball Bats Affect the Ball?</td>
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<td>MS Madison Victoria Jeffries</td>
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<td>MS Jillian Jennings</td>
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<td>Individual project: Global Impact STEM Academy, Springfield. Pig Feeds and their Available Protein</td>
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<td>MS Josie Lynn Jennings</td>
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<td>Individual project: Global Impact STEM Academy, Springfield. How Does Temperature Affect Zebrafish Sex Determination?</td>
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<td>MS Mariska Patricia Jeske</td>
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<td>Individual project: St Raphael, Bay Village. Magnet Fever</td>
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<td>MS Kate Eliza Johnson</td>
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<td>MS Lauren Elizabeth Johnson</td>
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<td>MS Alina Jones</td>
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<td>MR Brandon Scott Jones</td>
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<td>Individual project: Lehman Catholic HS, Sidney. Effectiveness of different Alkaline Earth Ions on Preventing Alpha-Amylase’s Denaturation</td>
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<td>MS Kara Elizabeth Jones</td>
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<td>Individual project: Central Christian, Kidron. Treating Tomato Plants with Mycorrhizae Accelerates Fruit Development</td>
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<td>MR Seth J Jones</td>
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<td>MS Laura Sophia Kaban</td>
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<td>Individual project: Carroll HS, Dayton. Is Harder or Softer Ice Better for Figure Skating?</td>
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<td>MR Yash Ajitesh Kakade</td>
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<td>Individual project: Dayton Regional STEM School, Kettering. SmartMower</td>
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<td>MS Emily Kay Kanet</td>
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<td>Individual project: Sylvania Northview HS, Sylvania. The Feelings of People of Color Dealing with Racism at their School after a Large Social Movement during the Summer of 2020</td>
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<td>MR Vishwum Kapadia</td>
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<td>Individual project: The University School, Chagrin Falls. Correlation of Biofeedback Parameters with the Perception of Relaxation</td>
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<td>MR Nate Charles Kargl</td>
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<td>MR Aarav Kasala</td>
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<td>Team project: Olentangy Shanahan MS, Lewis Center. Fantastic Carbon Contaminant Filters</td>
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<td>MS Serena Rani Kataria</td>
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<td>Individual project: Wheelersburg HS, Wheelersburg. The Effect of Mindful Meditation on Objective and Subjective Disease Activity in RA Patents</td>
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<td>MS Fallon Keeton</td>
<td>12</td>
<td>Individual project: Eastland Career Center, Groveport. The Potential Formation of Chloroform through the Integration of Triclosan into Water</td>
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<td>MS Paisley Kehres</td>
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<td>Team project: New Albany Intermediate School, New Albany. Baking with Natural and Artificial Resources</td>
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<td>MS Clarissa Kellerman</td>
<td>6</td>
<td>Individual project: St Francis Xavier, Medina. Cleaning U.S. Pennies: Will 100% Lemon Juice Clean U.S. Pennies the Best?</td>
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<td>MS Aurora Eliza Ker</td>
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<td>Team project: L T Ball Intermediate ES, Tipp City. Kill Those Germs</td>
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</table>
MR DANIEL KERNS
Grade: 7 Individual project
DeColores Montessori, Greenville
I'm Feeling Blue

MS TANYA KESKAR
Grade: 11 Team project
William Mason HS, Mason
Clean Energy with an Affordable Hydrogen Fuel Cell

MS CECILY KESSLER
Grade: 6 Individual project
Terrace Park ES, Terrace Park
Clean It Up!

MR TIM MICHAEL KESSLER
Grade: 8 Individual project
Bishop Flaget, Chillicothe
Which Brand of Tape is the Strongest?

MS FALIHA KHAN
Grade: 8 Individual project
Toledo Islamic Academy, Sylvania
Covid-19: Which Mask is More Protective?

MR ANDREW ELIAS KHAWAM
Grade: 5 Individual project
Birchwood School, Cleveland
How Much will Apples Oxidize in Different Conditions?

MR JACOB KHAYKIN
Grade: 8 Individual project
Solon MS, Solon
Testing Radiation

MR EMMETT MATTHEW KINNISON
Grade: 5 Individual project
SCOPES Academy at Unioto Elementary, Chillicothe
Do Babies Look Like Their Parents?—A Study of Phenotypic Traits

MS ABIGAIL KITTLER
Grade: 11 Individual project
Global Impact STEM Academy, Springfield
Caffeine Amounts in Different Roasts of Coffee Beans

MS ALY ANNE KLEIN
Grade: 5 Individual project
Mentor HS, Mentor
The Effect Dance has on the Perception of Body Image

MR KARSTEN KLINE
Grade: 5 Individual project
Northwestern ES, W Salem
The Strength of Wood

MR ALEX M KMETKO
Grade: 12 Individual project
The University School, Chagrin Falls
Testing Hexagon Supports on an Airfoil to Make it Lighter

MS LORELEI ANNABELLE KOEBERER
Grade: 8 Individual project
St Paschal Baylon, Cleveland
Does the Size of the Blood Spatter Correlate to the Distance from which the Blood Fell?

MR PREM ARMAN KOSHAL
Grade: 8 Individual project
Athens MS, Athens
The Effect of Social Presence on Contagious Yawning during Video Conference

MS TANYA KESKAR
Grade: 11 Individual project
Anna HS, Anna
Different Genres of Music Affecting Heart Rate

MR EMERSON T KRAUSS
Grade: 8 Individual project
Birchwood School, Cleveland
The Dissolution of Different Formulations of Acetaminophen

MS MARIAH DANIELLE KREUSCH
Grade: 11 Individual project
Arcanum HS, Arcanum
"Distracted" Reaction Time in Young Drivers

MS GRACE ELIZABETH KRUSE
Grade: 11 Individual project
Bloom Carroll HS, Carroll
Determining the Effects of Vermiculture on Various Manure Composts

MS SHRITHA KUTCHERLAPATI
Grade: 7 Individual project
Bethel JS, Tipp City
Electromagnetism in Action

MR WILLIAM KOHUT
Grade: 10 Individual project
Lakewood HS, Hebron
The Effect of Common Household Cleaning Chemicals on Surface Bacterial Growth

MR EASHAN KOSARAJU
Grade: 8 Individual project
The University School, Shaker Hts
Impact of Genetic Mutations on Evolution of SARS-CoV-2

MR JACOB KHAYKIN
Grade: 10 Individual project
L T Ball Intermediate ES, Tipp City
Effectiveness of Heat Protectants on Hair

MS BROOKLYN MARY KOESTER
Grade: 7 Individual project
Ottoville ES, Ottoville
What Effect does Upper vs. Lower Body Workout have on Heart Rate?

MR EMERSON T KRAUSS
Grade: 8 Individual project
Solomon HS, Sylvania
Testing Radiation

MS AUDREY KILMER
Grade: 7 Individual project
St Helen, Newbury
Does the Color of the Jump Affect How High a Horse Will Jump It?

MS RADHAKRISHNA KONKA
Grade: 11 Individual project
Arcanum HS, Arcanum
"Distracted" Reaction Time in Young Drivers

MR WILLIAM KOHUT
Grade: 10 Individual project
Lakewood HS, Hebron
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Grade: 7 Individual project
St Helen, Newbury
Does the Color of the Jump Affect How High a Horse Will Jump It?
MR BRYCE McEACHEN
Grade: 9 Individual project
Carroll HS, Dayton
The Effect of Varying Roof Paint
Light Reflectance Values on Interior Temperature

MS CLAIRE McEACHEN
Grade: 9 Individual project
Carroll HS, Dayton
Evaluating the Impact of Nail Polish/Coverings on the Accuracy of Pulse Oximetry Readings

MR SAMMY McGILL
Grade: 7 Individual project
St Mary, Lancaster
The Effect of Poor Posture on Lung Capacity and Blood Pressure

MR EVAN THOMAS McGRAW
Grade: 7 Individual project
Bloom Carroll HS, Carroll
Which Gluten Free Flour Works the Best?

MR SADHIL MEHTA
Grade: 9 Individual project
Tippecanoe HS, Tipp City
Studying Self-Assembling Lichtenburg Patterns Under High Voltage

MS AVA BELLE MEILI
Grade: 7 Team project
Athens MS, Athens
Gluten vs. Gluten-Free: Which Molds First?

MS ARABELLA ANAMARIA MELLENTHIN
Grade: 8 Individual project
St Paschal Baylon, Cleveland
How do Different Foods Affect your Blood Sugar?

MS NEVAN TAYLOR MILEY
Grade: 7 Individual project
DeColores Montessori, Greenville
Battling Bacteria

MR ADAM THOMAS MILLER
Grade: 9 Individual project
Anderson HS, Cincinnati
Could Different Card Shuffling Techniques Match the Randomness of the Seven Riffle Shuffle

MS AUBREY ROSE MILLER
Grade: 8 Individual project
Bishop Leibold E & W Campus, Dayton
Your Key to Success: Stop Fruit Browning

MS BEREA ELLEN MILLER
Grade: 5 Individual project
East Richland Christian School, St Clairsville
Comparison of Heat Loss in Insulated Coffee Cups

MS HALEY MILLER
Grade: 9 Individual project
DeColores Montessori, Greenville
Solar Beeswax Melter

MR JEDIDIAH S MILLER
Grade: 12 Team project
Northwestern HS, W Salem
Compactable Crutch

MR LOGAN NICHOLAS MILLER
Grade: 9 Individual project
Bloom Carroll HS, Carroll
The Essence of Curve and Its Effects

MR TEDDY MILLER
Grade: 7 Individual project
DeColores Montessori, Greenville
Indoor Basil Harvesting

MR WILLIAM JAMES MILLER
Grade: 8 Individual project
The University School, Shaker Hts
Plants in a Future World

MS ANNA CLAIRE MINNECI
Grade: 8 Individual project
Holy Angels, Sidney
Does Temperature Affect How Long Glow Sticks Last?

MR EVAN ALAN MINOR
Grade: 8 Individual project
Zane Trace MS, Chillicothe
Magnetic Propulsion

MR VARUN MIRIYALA
Grade: 12 Individual project
Eastland Career Center, Groveport
The Role of LOS Glycosyltransferase LpsA in Adaptation of Nontypeable Haemophilus Influenzae During Middle Ear Infection

MR ELIJAH PAUL MOLSEED
Grade: 8 Individual project
St Brendan, N Olmsted
Does Mass Affect a Drones Lift?

MR WILLIAM W MONTALTO
Grade: 6 Individual project
St Francis Xavier, Medina
Teeth Whitening Experiment

MR ELIJAH J MOORE
Grade: 6 Individual project
The Essence of Curve and Its Effects

MR HANK MORRIS
Grade: 5 Individual project
Northwestern ES, W Salem
Best Household Rust Remover

MS MADELINE M MORRIS
Grade: 5 Individual project
Northwestern ES, W Salem
Does Smell Affect Taste?

MS ARABELLA ANAMARIA MELLENTHIN
Grade: 8 Individual project
St Paschal Baylon, Cleveland
How do Different Foods Affect your Blood Sugar?

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Grade: 12 Team project
Northwestern HS, W Salem
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MR LOGAN NICHOLAS MILLER
Grade: 9 Individual project
Bloom Carroll HS, Carroll
The Essence of Curve and Its Effects

MS SARAH MILLER
Grade: 12 Team project
Northwestern HS, W Salem
Proof of Principle: Using Dinoflagellates as a Sustainable Light Source

MR TEDDY MILLER
Grade: 7 Individual project
DeColores Montessori, Greenville
Indoor Basil Harvesting

MR WILLIAM JAMES MILLER
Grade: 8 Individual project
The University School, Shaker Hts
Plants in a Future World

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Holy Angels, Sidney
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St Francis Xavier, Medina
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Grade: 6 Individual project
The Essence of Curve and Its Effects

MR HANK MORRIS
Grade: 5 Individual project
Northwestern ES, W Salem
Best Household Rust Remover

MS MADELINE M MORRIS
Grade: 5 Individual project
Northwestern ES, W Salem
Does Smell Affect Taste?
Roster of Student Exhibitors

Ms. Addison Claire Mullins
Grade: 9 Individual project
Wheelersburg HS, Wheelersburg
The Effects of Temperature Increase on Chaetomorpha

Mr. Ethan Troy Mullins
Grade: 6 Individual project
Wheelersburg MS, Wheelersburg
The Science of Spherification

Mr. John Patrick Mnurnane
Grade: 8 Individual project
St. Paul, Westerville
Does Anxiety Affect Test Scores?

Ms. Rayanne Ihsan Mustapha
Grade: 12 Individual project
Bounty Collegium, Toledo
Novel Solutions to Increase Protection in Contact

Mr. Rishitej Nagubandi
Grade: 8 Individual project
Jackson Memorial MS, Massillon
Temperature? Surface Tension? Probably Needs More Explanation

Ms. Krishna Nair
Grade: 8 Individual project
Hopewell HS, West Chester
How Tap Water or Filter Watered Water Safety can Reduce Consumption of Plastic Water Bottle and Positively Impact Climate Change

Mr. Thejas Saieev Nair
Grade: 5 Team project
New Albany Intermediate School, New Albany
Eggshell Corrosion Experiment

Mr. Mahd Syed Naqvi
Grade: 9 Team project
Ottawa Hills Junior/Senior HS, Ottawa Hills
Is Wind or Solar Power more Effective on a Smaller Scale

Mr. Adharsh Narendrakumar
Grade: 8 Individual project
Birchwood School, Cleveland
A Semi-Autonomous Device that Measures and Observes the Capillary Refill Time of a Patient

Ms. Harper Nash
Grade: 8 Individual project
Holy Trinity, Somerset
Does the Color of Light Affect Plant Growth?

Mr. Rishivarshil Nelakurthi
Grade: 10 Individual project
Olentangy HS, Lewis Center
Exploring the Correlation Between Expressibility and Classification Accuracy in Quantum Circuits

Ms. Stella Paige Ninichuck
Grade: 5 Team project
Felicity Franklin MS, Felicity
The Battle of Electrolytes! Who Will Win Gatorade or Apple Juice?

Ms. Finley Elliott Noel
Grade: 5 Team project
Notre Dame HS, Portsmouth
"It's No Joke...Don't Smoke!"

Ms. Megan Noel
Grade: 10 Individual project
Dayton Regional STEM School, Kettering
How Much Peanut Residue Spreads from One Surface to Another?

Mr. Samuel Vaughn Norman
Grade: 9 Individual project
Carroll HS, Dayton
The Effect of Milk Spoiling on Change of pH

Mr. Corbin Joseph NuSS
Grade: 7 Individual project
All Saints, Cincinnati
Cell Phone Radiation: Which Materials Block it Best?

Ms. Lillian Nicole Obhof
Grade: 6 Individual project
St. Francis Xavier, Medina
Stains! Stains! Go Away! Which Stain Remover Works the Best?

Mr. Kian Gracin O'Connell
Grade: 8 Individual project
Bishop Leibold E & W Campus, Dayton
Swinging Fore Distance

Ms. Addison O'Connor
Grade: 8 Individual project
St. Michael Consolidated, Ripley
Bright and White

Ms. Jane Odille
Grade: 5 Individual project
John F. Kennedy Catholic Lower School, Warren
Do Family Members have Similar Fingerprints?

Mr. Thomas Michael Oliver
Grade: 8 Individual project
Bishop Leibold E & W Campus, Dayton
It's All About An-Goals!

Ms. Amelia Rose O'Meara-Hill
Grade: 6 Individual project
St. Vincent de Paul, Mt Vernon
Oil Spills

Mr. Liam Oney
Grade: 5 Individual project
L. T. Ball Intermediate ES, Tipp City
Testing Popular Battery Brands

Ms. Brinley Ott
Grade: 5 Team project
Independence HS, Liberty Twp
Rotten to the Core

Mr. Jackson Scott Owens
Grade: 7 Individual project
St. Columban, Loveland
What is the Best Antidote for Spice?

Ms. Kaitlyn Christina Pak
Grade: 8 Individual project
St. Paschal Baylon, Cleveland
In what Location is Skyglow the Greatest?

Ms. Yeshwarya Pakki
Grade: 12 Individual project
Sylvania Northview HS, Sylvania
Detection of Reactive Oxygen Species During Photodynamic Therapy

Ms. Gabriela Panizo
Grade: 12 Individual project
Eastland Career Center, Groveport
The Effects of Red and Far-Red Light on Carbon Dioxide Absorption in Photosynthetic Bacteria

Mr. Coltrane Parsons
Grade: 7 Individual project
Athens MS, Athens
Engineering Soybean Bioplastic at Home

Ms. Emily Parsons
Grade: 7 Individual project
Athens MS, Athens
It's a Bird...It's a Plane...It's Superworm!
Solving our Microplastic Problem

Ms. Deepthisri Paruchuri
Grade: 9 Individual project
Olintangy HS, Lewis Center
Domestic Greywater Treatment by Natural Coagulants Combined with Flocculation and Filtration

Ms. Divyasree Paruchuri
Grade: 8 Individual project
Olintangy Shanahan MS, Lewis Center
Effects of Oxybenzone in Sunscreen on Glycine max and Artemia salina

Mr. Praneel Probir Patel
Grade: 10 Individual project
Dublin Jerome HS, Dublin
Identifying Emotions Present in Human Speech and Improving Audio Analysis Utilizing Machine Learning Algorithms

Mr. Ashton Paul
Grade: 11 Individual project
Arcanum HS, Arcanum
Plants vs. Carbon
MS ALLISON PAYTON
Grade: 8 Individual project
Zane Trace MS, Chillicothe
Water Bottle Battle

MR ADITYA AMIT PENDSE
Grade: 5 Individual project
New Albany Intermediate School, New Albany
The Cold Bounce - Effect of Temperature on Tennis Ball Bounce

MS OLIVIA PERRY
Grade: 12 Individual project
Eastland Career Center, Groveport
The Effects of Different Concentrations of Potassium Chloride on the Development of Zebrafish Embryos

MR HENRY WILLIAM PETERSEN
Grade: 8 Individual project
Holy Angels, Sidney
How Does Golf Ball Compression Effect Spin Rate?

MR CIERRA IMANI-RAYN PHILLIPS
Grade: 12 Individual project
Our Lady Of Perpetual Help, Grove City
Does Crossed Hand-Eye Dominance Affect Basketball Shooting Percentages?

MS AVERY GRACE PIERRE
Grade: 7 Individual project
Our Lady Of Perpetual Help, Grove City
Does the Presence of Hand-Eye Dominance Affect Basketball Shooting Percentages?

MS SAMANTHA PIETRO
Grade: 5 Team project
New Albany Intermediate School, New Albany
Baking with Natural and Artificial Resources

MS MAKAELA PIPPINS
Grade: 5 Individual project
Valley Christian School, Youngstown
Geode “EGG” Speriment

MS ANANYA PISE
Grade: 7 Individual project
Hyatts MS, Powell
The Effects of Common Beverages on Teeth

MR JASHWIN PISINI
Grade: 6 Team project
Olentangy Shanahan MS, Lewis Center
Fantastic Carbon Contaminant Filters

MS LUKEA MEI PITINII
Grade: 12 Individual project
Howland HS, Warren
The Effects of Decibel Levels on Plant Growth

MS EMILY MAE PLAGEMAN
Grade: 11 Individual project
Bloom Carroll HS, Carroll
The Effects of Hand Gestures on Memory

MR MATTHEW STEVEN PLAGEMAN
Grade: 9 Individual project
Bloom Carroll HS, Carroll
How Different Surfaces Affects the Results on Die Rolls

MS LAYLA RASHELL PLATFOOT
Grade: 9 Individual project
Lehman Catholic HS, Sidney
How do pH Levels Affect Soybean Growth?

MS TAYLOR ALEXIS PLATFOOT
Grade: 6 Individual project
Holy Angels, Sidney
What Soil Helps Sunflowers Grow the Tallest

MS HANNAH ELIZABETH POND
Grade: 10 Individual project
Dayton Regional STEM School, Kettering
Bacteria on Different Types of Masks

MR MATTHEW PANICKER PRAH
Grade: 8 Individual project
St Mary Immaculate Conception, Wooster
PTFE vs Ceramic Skates

MS MADISON ADELE PRENGER
Grade: 12 Individual project
Anna HS, Anna
Organic Matter in Relation to how Compost Components Affect Spinach Plant Growth

MS LILY NOELLE PRICE
Grade: 7 Individual project
St Agatha, Columbus
Does Taking Away Smell Affect Taste?

MS MIA KATHERINE PRISBY
Grade: 12 Individual project
Sylvania Southview HS, Sylvania
The Effects of Social Media on the Development of Eating Disorders

MS FAITH VICTORIA PROEHL
Grade: 6 Individual project
Zane Trace MS, Chillicothe
Egg-Tastic

MR OWEN DAVID PRY
Grade: 7 Individual project
St Brendan, N Olmsted
Which Liquids Are Most Corrosive?

MR WILLIAM T PRZYBYLEK
Grade: 5 Individual project
New Albany Intermediate School, New Albany
How to Cook the Juiciest Burger

MR CHRISTIAN JOSEPH PULLINS
Grade: 8 Individual project
Incarnation, Centerville
Clean the Desks!

MR CASSIUS PURDY
Grade: 8 Individual project
St Paul, Westerville
The Effect of Coin and Die Mass on their Outcomes

MS ABIGAIL ANN PURTEE
Grade: 11 Team project
Upper Valley, Piqua
Does Eating Breakfast Effect Athletic Performance

MS WILLOW G PYLES-DODDS
Grade: 5 Team project
L T Ball Intermediate ES, Tipp City
Effectiveness of Heat Protectants on Hair

MR RAIDEN ALEC QUINN
Grade: 8 Team project
Miami Valley Career Tech Ctr, Clayton
Tachycardia Tunes

MS HANNAH PAIGE RADEMACHIR
Grade: 11 Individual project
Dublin Jerome HS, Dublin
Which Tomato Retains the Most Amount of Active Vitamin C when Cooked

MS SYDNEY GISELLE RAMSEY
Grade: 10 Individual project
Carroll HS, Dayton
The Effect of Magicicada Fertilizer on Glycine max Growth

MS NINA GRACE RANDO
Grade: 8 Individual project
St Rose, Perrysburg
Which Sugar Does Yeast Prefer?

MR VARUN RAMANUJAM
Grade: 9 Individual project
Dublin Jerome HS, Dublin
Which Tomato Retains the Most Amount of Active Vitamin C when Cooked

MS SYDNEY GISELLE RAMSEY
Grade: 10 Individual project
Carroll HS, Dayton
The Effect of Magicicada Fertilizer on Glycine max Growth

MS NINA GRACE RANDO
Grade: 8 Individual project
St Rose, Perrysburg
Which Sugar Does Yeast Prefer?

MR ABDULLAH ALI RAUFI
Grade: 7 Individual project
Toledo Islamic Academy, Sylvania
Preventing Moisture Loss

MR ALEXANDER ERNEST REA
Grade: 6 Individual project
St Paul, Salem
How Does Weight Affect a Drone?
MS JULIA E REA  
Grade: 7 Individual project  
St Sebastian, Akron  
Vitamin C: Keeping it Cool

MR ISAAC REASH  
Grade: 7 Individual project  
St Paul, Westerville  
The Effect of Detergents on Grass Growth

MR JACOB TIMOTHY RICE  
Grade: 10 Individual project  
Pettisville HS, Pettisville  
The Effect of Growing Cereal Rye with Annual Ryegrass as a Cover Crop

MS ELLA MARIE RICHER  
Grade: 10 Individual project  
Arcanum HS, Arcanum  
Apple vs. Android

MS SAWYER JANE RIDGE  
Grade: 5 Team project  
L T Ball Intermediate ES, Tipp City  
Kill Those Germs

MS KATE ELIZABETH RIEGEL  
Grade: 9 Individual project  
Archbishop Alter HS, Kettering  
The Effect of Environmental and Synthetic Agents on E. coli

MS JULIA RIESENBECK  
Grade: 12 Individual project  
Miami Valley Career Tech Ctr, Clayton  
The Deformalization of Urinary Calculi

MR CARTER JAMES RIGEL  
Grade: 8 Individual project  
Holy Angels, Sidney  
Which Cleaning Solution can Eradicate the Most Bacteria?

MR GRAHAM RISK  
Grade: 7 Individual project  
Mother Teresa Catholic, Liberty Twp  
Which Bridge Structure is the Strongest?

MS MEG ANN RITER  
Grade: 7 Individual project  
Our Lady Of Perpetual Help, Grove City  
Vivid Numbers

MR MAHED SAYED RIZVI  
Grade: 8 Individual project  
Ridgewood School, Springfield  
Apple Vs Samsung

MR WYATT ROBBINS  
Grade: 5 Individual project  
L T Ball Intermediate ES, Tipp City  
What Potency of Hydrogen Peroxide makes a Bigger Outburst?

MS AVA ISABELLA ROMAN  
Grade: 8 Individual project  
St Albert The Great, N Royalton  
Let’s Face It!

MS CECILIA MAJA ROWANE  
Grade: 10 Individual project  
Beaumont School, Cleveland Hts  
Comparing the Flammability of Kombucha Paper Textile

MS KAILYN AIMEE RUDD  
Grade: 5 Individual project  
John F Kennedy Catholic Lower School, Warren  
What Metal is the Most Corrosion Resistant to Salt Water?

MS LEEN SALEH  
Grade: 6 Individual project  
Birchwood School, Cleveland  
Glucose in Different Combinations of Fruit Juices

MR HARSHA SANAKA  
Grade: 11 Individual project  
Hawken School, Gates Mills  
Temporal Trends and Disparities in Gastroenterology Care Utilization Before, During, and After COVID-19 Lockdown

MS MEREDITH B SANDERS  
Grade: 11 Individual project  
Carroll HS, Dayton  
Mathematically Modeling the Decay Rate of Polystyrene in Ocean Water

MR ADITYA VARMA SANGU  
Grade: 7 Individual project  
Orentangy Shanahan MS, Lewis Center  
Magnet-o-Power

MS TARUNIKA SARAVANAN  
Grade: 8 Individual project  
Birchwood School, Cleveland  
When Popped, Do Different Colors of Popcorn Leave Different Amounts of Unpopped Kernels?

MS MAYA LEELA SARIKONDA  
Grade: 12 Individual project  
Sylvania Northview HS, Sylvania  
The Function of Neurons AVA, RIM, and BAG in Caenorhabditis elegans as a Response to a 1-octanol Aversive Stimulus

MR CARTER SCHROCK  
Grade: 8 Individual project  
Bath MS, Lima  
Don’t Touch My Pi!

MR CRISTIAN VICTORIO SCHROCK  
Grade: 5 Individual project  
Beil Creek ES, Beilbrook  
Why do Some Things Float, Others Sink, & Submarines do Both?

MS AVA ISABELLA SCOTT  
Grade: 6 Individual project  
St Mary Immaculate Conception, Wooster  
Extinguishing Flames with CO₂

MS JULIE SUE SEBASTIAN  
Grade: 10 Individual project  
Bethel HS, Tipp City  
Banishing Nail Biting

MS JILLIAN SEIBERT  
Grade: 7 Individual project  
Mother Teresa Catholic, Liberty Twp  
Which Type of Fat Gives you the Fluffiest Chocolate Chip Cookie

MR MAXIMILIAN MATTHIAS ANTON SEIFRIED  
Grade: 5 Individual project  
St Michael Consolidated, Ripley  
Sophisticated Sounds

MS CLAIRE AMELIA ANN SHARICK  
Grade: 7 Individual project  
St Edward, Ashland  
Which Auditory Environment Creates the Best Night’s Sleep?

MR KANE MICHAEL SHAWGER  
Grade: 7 Individual project  
Mother Teresa Catholic, Liberty Twp  
Which Type of Wrestling Shoe has the Best Traction?

MR CHARLIE NAEL SHEHADEH  
Grade: 7 Individual project  
Sts Joseph & John Interparochial, Strongsville  
What Type of Ground Cover can Stop Erosion the Best?

MR AVNISH VITHAL SHENDE  
Grade: 7 Individual project  
Perrysburg JS, Perrysburg  
Novel Irrigation Design for Water Conservation

MS SOPHIA SUZANNE SHENK  
Grade: 10 Individual project  
Archbishop Alter HS, Kettering  
The Effectiveness of Different Soundproof Materials on the Detection of Sound

MS IVY ROSE-LYNN SHERIFF  
Grade: 11 Individual project  
Sylvania Northview HS, Sylvania  
The Effect of Reduced Oxygen Levels on Microbial Respiration at Different Vegetation Dominated Soils

MS JULIE SUE SEBASTIAN  
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Banishing Nail Biting

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Grade: 7 Individual project  
Sts Joseph & John Interparochial, Strongsville  
What Type of Ground Cover can Stop Erosion the Best?
ROSTER OF STUDENT EXHIBITORS

MR JOHN NATHANIEL SHIN
Grade: 11 Individual project
Hawken School, Gates Mills
Utilizing Intelligent Data Partitioning to Improve Machine Learning Models

MS MARISSA KAY SHOOK
Grade: 11 Individual project
Ansonia HS, Ansonia
Minimizing the Effects of Acid Rain on Elodea canadensis

MS CAITLIN MARIE SHROYER
Grade: 8 Individual project
St Rose, Perrysburg
Electrical Resistance in Soil

MS SCARLETT SHUPE
Grade: 5 Team project
Monroeville ES, Monroeville
How do Gear Combinations Effect Torque?

MS BAILEY SHY
Grade: 8 Individual project
Liberty Union HS, Baltimore
The Correlation Between Burnout in Gifted Students and their Age.

MR AMAAN SIDDQI
Grade: 8 Individual project
Lake Ridge Academy, N Ridgeville
Creating a Electromechanical Transducer

MR LAKOTA LLOYD SIEGEL
Grade: 8 Individual project
Hilltop HS, West Unity
How Corrosion from Hot Salt Water will Affect the Resistance on the Wire?

MX CORINNE MEADOW SIMPSON
Grade: 8 Individual project
Incarnation, Centerville
An Egg-cellent Experiment

MR RYAN SIVAKUMAR
Grade: 11 Individual project
Upper Arlington HS, Upper Arlington
Repurposing of Disposable Face Masks into Reinforcing Fibers for Epoxy Composites

MR COLTEN SLOAT
Grade: 7 Team project
Hyre CLC, Akron
Testing Electrolytes in Gatorade and Gatorade Zero

MR CONNER FREDICK SMITH
Grade: 8 Team project
Zane Trace MS, Chillicothe
Deer Bait

MS ELANORA RAIN SMITH
Grade: 11 Individual project
Ottawa Hills Junior/Senior HS, Ottawa Hills
The Generation of a Recombinant Protein from Pseudomonas sp. and its Ability to Degrade Microcystin Toxin MC-LR

MS KIAHNA SMITH
Grade: 5 Team project
Monroeville ES, Monroeville
How do Gear Combinations Effect Torque?

MR KARLEE JO SNAVELY
Grade: 6 Team project
Zane Trace MS, Chillicothe
Which Nail Polish?

MR NATHAN SNIKIZ
Grade: 11 Individual project
Carroll HS, Dayton
Evaluating the Effectiveness of Citrus × Sinensis Peel-Derived Biopolymer Composite Films as Preservation Agents

MS ZIYNAT SHOKIRJON QIZI SODIKOVA
Grade: 7 Individual project
St Mary, Lancaster
Eww!! Is that a Fungi on my Cheese Stick?!

MR AVIRAJ SOIN
Grade: 7 Team project
Ohio Virtual Academy, Maumee
Creating Hybrid Plants to Improve Biodiversity

MR DHILEN SOIN
Grade: 6 Team project
Ohio Virtual Academy, Maumee
Creating Hybrid Plants to Improve Biodiversity

MS BRADY ELIZABETH SOMMER
Grade: 9 Individual project
Ohio Virtual Academy, Maumee
How Morality Affects the Decisions you may Face In Everyday Life

MR LUCAS SCOTT SPENCER
Grade: 11 Individual project
Mentor HS, Mentor
The Effects COVID has on Students’ Social Health and Academic Life

MS NANDITA SRIKUMAR
Grade: 8 Individual project
Solon MS, Solon
Effect of Activated Carbon on Water Filtration

MR CODY JAMES STAFINSKI
Grade: 7 Individual project
Sacred Heart of Jesus, Wadsworth
Plant Growth

MS DANA IOANA STAN
Grade: 9 Individual project
New Albany HS, New Albany
Drone Propellers: Thrust the Process

MS MELANIE STATSEVYCH
Grade: 6 Individual project
Birchwood School, Cleveland
How does Temperature Affect the Height of a Bouncing Tennis Ball?

MS MADISON MARIE STAWICKI
Grade: 7 Individual project
Sts Joseph & John Interparochial, Strongsville
Rainbow Flame Experiment

MR GRAHAM TOLBERT STECKER
Grade: 6 Individual project
St Mary Central, Martins Ferry
Predicting Rocket Performance

MR PAUL WILLIAM STECKER
Grade: 8 Individual project
St Mary Central, Martins Ferry
Wheelchair Accessible Moving Wall Cabinet Prototype

MS IZZY STEFANSKI
Grade: 9 Individual project
Dayton Regional STEM School, Kettering
The Effects Spin Designed Strings have on Tennis Shots

MR ANAND CHARLES STEPHENS
Grade: 10 Individual project
The University School, Chagrin Falls
The Effects of a Group’s Words and Actions on the Beliefs and Behavior of Others

MS ADDYSON BRAELYN STEWART
Grade: 7 Individual project
Southeastern MS, Chillicothe
How does a Goats Breed Affect Development?

MS KARA E STEWART
Grade: 6 Individual project
Holy Angels, Sidney
How does Dingo Dental Sticks Clean Dog’s Teeth

MS ANAMARIE BURNETTE STIVER
Grade: 12 Individual project
Lehman Catholic HS, Sidney
Inhibition of S. epidermidis
Roster of Student Exhibitors

MR Ian Andrew Stiver
Grade: 8 Individual project
Holy Angels, Sidney
Deer Repellent Effectiveness

MS Reese Graceylnn Stiver
Grade: 6 Individual project
Zane Trace MS, Chillicothe
Music Beats

MS Riley Marilyn Stiver
Grade: 8 Individual project
Zane Trace MS, Chillicothe
Eyewitness Reliability

Mr Vincent Carmine Stocco
Grade: 7 Individual project
St Paul, Westerville
Does the Color of a Bell Pepper Affect its Vitamin C Content?

Mr Peter Yi Jun Stout
Grade: 9 Individual project
Archbishop Alter HS, Kettering
The Effect of Sleep Deprivation on Reaction Time

Ms Natalie Stover
Grade: 12 Individual project
Wynford HS, Bucyrus
What’s Behind the Mask?

Ms Tori Ann Strayer
Grade: 11 Individual project
Bloom Carroll HS, Carroll
Growth Rates of Different Hydroponics and Aquaponics Systems

Ms Sade Strunk
Grade: 6 Individual project
St Michael Consolidated, Ripley
Germination Station

Mr Andrew Donald Sturtz
Grade: 10 Individual project
Ottawa Hills Junior/Senior HS, Ottawa Hills
Implications of Calcium Molarity on Isopod Production of Composted Matter

Mr Connor Spencer Sullivan
Grade: 6 Individual project
Terrace Park ES, Terrace Park
Risking It All

Mr Hans Swain
Grade: 10 Individual project
The University School, Chagrin Falls
Effect of Excess Dietary Iron on Intestinal Tumorigenesis

Ms Caitlin Patricia Sweeney
Grade: 8 Individual project
St Albert The Great, N Royalton
Analyzing Sanitizing

Ms Emily Kimiko Swope
Grade: 11 Individual project
Bloom Carroll HS, Carroll
Determining the Optimum Preparation and Storage Conditions of Ascorbic Acid IV Solutions

Ms Sophia Marie Szoloski
Grade: 8 Individual project
Athens MS, Athens
Exploring the Relationship Between Level of Participation and Mental Toughness among Runners

Mr Raef Tahm
Grade: 11 Individual project
The Miami Valley School, Dayton
Analyzing Lung Radiography Images for COVID-19 using Deep Learning

Mr Emir Refik Tali
Grade: 9 Individual project
William Mason HS, Mason
Investigating Dynamic Charging

Mr Anderson Edward Talley
Grade: 8 Individual project
The University School, Shaker Hts
Hot Topic: Putting a Twist on the Heat Shock Method

Ms Maya Tang
Grade: 11 Individual project
Hathaway Brown, Shaker Hts
Can Wearable Technology Help Guide Dieting Safety?

Ms Anthony Robert Tarutani
Grade: 8 Individual project
St Mary Immaculate Conception, Wooster
What’s in your parachute?

Ms Amelia Elizabeth Taylor
Grade: 6 Individual project
New Albany Intermediate School, New Albany
What Spray Cleaner does the Best Job at Stopping the Growth of Bacteria?

Ms Hannah Taylor
Grade: 10 Individual project
Fairland HS, Proctorville
Battery Life

Mr Samuel Tencza
Grade: 7 Individual project
St Mary, Lancaster
Does Whole Milk Spoil Faster than Skim Milk?

Ms Bridget Kathleen Thomas
Grade: 9 Individual project
Beaumont School, Cleveland Hts
The Effect Container Material has on the Growth of Plants

Ms Claire Nicole Thompson
Grade: 8 Individual project
Bishop Leibold E & W Campus, Dayton
Feeling Blue?

Ms Jordan Thornburg
Grade: 8 Individual project
Incarnation, Centerville
Does Surface Matter?

Mr Saketh Thotapalli
Grade: 10 Individual project
Olentangy Shanahan MS, Lewis Center
Fantastic Carbon Contaminant Filters

Mr Brady Robert Tinnerman
Grade: 7 Individual project
Milton-Union MS, W Milton
Everyone Burps

Mr Neil Tivakaran
Grade: 10 Individual project
Carroll HS, Dayton
Effect of Biosurfactants on Carbon Nanotube-Coated Fabric Conductivity

Mr Seth Tivakaran
Grade: 11 Individual project
Carroll HS, Dayton
Comparison of Salt Compounds in Alginic Acid-Based Hydrogels

Ms Samantha Kaitlynn Todd
Grade: 7 Team project
Sts Joseph & John Interparochial, Strongsville
Rainbow Flame Experiment

Ms Jessica Kathleen Toohip
Grade: 10 Individual project
Beaumont School, Cleveland Hts
Sparking an Interest in Electricity

Ms M’Kaia Zhané Trent
Grade: 12 Individual project
Eastland Career Center, Groveport
Investigation Between Schwann Cell Nuclei Counts and Internode Length in CMT-2E Models

Ms Sophia Christina Tsiouris
Grade: 9 Individual project
Bloom Carroll HS, Carroll
The Effects Pollution has on the Transpiration of Plants

Mr Oli Reily Tucker
Grade: 7 Individual project
Bishop Leibold E & W Campus, Dayton
The Science of Afterimages
## Roster of Student Exhibitors

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Type</th>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR Brayden James Turnage</td>
<td>7</td>
<td>Individual project</td>
<td>Do All Liquids Evaporate at the Same Rate?</td>
</tr>
<tr>
<td>MS Jewell Evelyn Tyler</td>
<td>10</td>
<td>Individual project</td>
<td>The Effect of Volume of Egg Mass on the Height of Brownies</td>
</tr>
<tr>
<td>MR Jacob Ohnack</td>
<td>12</td>
<td>Individual project</td>
<td>The Ways a Room Influences Safety</td>
</tr>
<tr>
<td>MS Colleen Ungurait</td>
<td>8</td>
<td>Individual project</td>
<td>The Intellect of the American Crow</td>
</tr>
<tr>
<td>MR Mihir Vador</td>
<td>12</td>
<td>Individual project</td>
<td>Soybeans or Corn? Which Produces More Total Heat Energy?</td>
</tr>
<tr>
<td>MS Svara Amol Vaidya</td>
<td>6</td>
<td>Individual project</td>
<td>How Bubbles Form</td>
</tr>
<tr>
<td>MS Srinidhi Valathappan</td>
<td>10</td>
<td>Individual project</td>
<td>Driving Inflammation in SARS-CoV</td>
</tr>
<tr>
<td>MS Quinnie Van de Walle</td>
<td>10</td>
<td>Individual project</td>
<td>Distance of Mucus Droplets Based on Nose Cover Method During a Sneeze</td>
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<td>MR Brayden Christopher Van Dyke</td>
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<td>How Bubbles Form</td>
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<tr>
<td>MR Ethan Hart Varner</td>
<td>12</td>
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<td>The Effect of Mass on the Distance a Paper Airplane Travels</td>
</tr>
<tr>
<td>MR Aaron P Velez</td>
<td>9</td>
<td>Individual project</td>
<td>Is Wind or Solar Power more Effective on a Smaller Scale</td>
</tr>
<tr>
<td>MR Zachary Allan Verley</td>
<td>11</td>
<td>Individual project</td>
<td>The Impact of Ocean Acidification on Bioluminescent Sea Creatures</td>
</tr>
<tr>
<td>MS Lila Isabella Vescera</td>
<td>5</td>
<td>Individual project</td>
<td>Bath Bomb Science</td>
</tr>
<tr>
<td>MS Autumn Izumi Vickers</td>
<td>5</td>
<td>Individual project</td>
<td>Novel Diagnosis of Multiple Sclerosis through Convolutional Neural Networks by Analyzing 3 Dimensional Magnetic Resonance Images</td>
</tr>
<tr>
<td>MS Evi Carmen Wallace</td>
<td>8</td>
<td>Individual project</td>
<td>How does Hydroponics and Aquaponics Affect Plant Growth</td>
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<tr>
<td>MS Christopher Wang</td>
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<td>How the Diameter of a Baseball Bat Affects the Distance Traveled</td>
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<tr>
<td>MR Weining Wang</td>
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<td>Where Should I Swim? The Great Miami River or Little Miami River?</td>
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<td>MS Adonis M. Wazni</td>
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<td>How to Remove Bacteria on Kitchen Sponges?</td>
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<td>The Effect of Exposure to Environmental Stimuli on Dragline Spider Silk</td>
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<td>Transmission of Sound Using Light</td>
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<td>Stain Away</td>
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Grade: 10 Team project  
Dayton Regional STEM School, Kettering  
Revising a Domestic Hydroelectric System

MS LILA ROSEMARY WRIGHT  
Grade: 8 Individual project  
St Mary Immaculate Conception, Wooster  
Sign Psychology

MS ADDISON WROBBEL  
Grade: 5 Individual project  
Central College Christian Academy, Westerville  
The Effects of Temperature on a Bounce

MS AVERY MICHELLE WYAN  
Grade: 6 Individual project  
Holy Angels, Sidney  
Does the Height of a Gymnast Affect the Length of their Forward Roll?

MS KELLY WYSE  
Grade: 11 Individual project  
Pettisville HS, Pettisville  
Comparing Skin Moisturizers and Antibiotic Ointments in the Ability to Inhibit Bacteria

MS CAREY JEANNE YANT  
Grade: 6 Individual project  
Piqua Catholic ES, Piqua  
How does the Outside Temperature Affect how a Marshmallow Melts in a Solar Oven

MS BRIANNA ELIZABETH YODER  
Grade: 11 Individual project  
Alliance HS, Alliance  
Generating Sierpinski’s Triangle

MS BRYLEE ISABELLA YOHEY  
Grade: 11 Team project  
Upper Valley, Piqua  
Does Eating Breakfast Effect Athletic Performance

MR RYAN AIDEN ZAND  
Grade: 6 Individual project  
New Albany Intermediate School, New Albany  
Does Soil Compaction Affect Plant Growth?

MR HONGXIN ZHU  
Grade: 6 Individual project  
New Albany Intermediate School, New Albany  
The Testimony of Pennies and Coco-Cola

MS JULIA ZHU  
Grade: 10 Individual project  
Hathaway Brown, Shaker Hts  
C19orf12 Ablation Caused Mitochondrial Dysfunction and Susceptibility to Ferroptosis in Neuronal Cell Model of MPAN

MR MICHAEL JIAQI ZHU  
Grade: 8 Individual project  
Birchwood School, Cleveland  
Biodegradable Plastics: An Experiment Conducted on Diverse Types of Biodegradable Plastics to Test which Type can Degrade the Quickest and Withstand the Most Tension

MS ANNA ZOU  
Grade: 7 Individual project  
Jackson MS, Jackson  
The Design of a Paper Plane that Flew the Farthest

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To learn more about the $1000 award, visit grownextgen.org/sciencefair
Congratulations Ohio Science Day Scholars!

Continue your excellence in the sciences at Wilmington College, where hands-on learning opportunities abound.

WC FEATURES PROGRAMS IN THESE AREAS OF SCIENCE:

**BIOLOGY**
- Life Science
- Environmental Science
- Health Science
- Biotechnology
- Nursing (Partnership with Mt. Carmel)

**CHEMISTRY**

**EXERCISE SCIENCE**
- Allied Health
- Sport Performance
- Pre-Athletic Training

**AGRICULTURE**
- Agronomy
- Agricultural Business
- Agricultural Communications
- Animal Science
- Plant, Environmental & Soil Science
- Sustainability

**EQUINE BUSINESS MANAGEMENT**
- Equine Studies

**GRADUATE PROGRAMS:**
- Master of Science in Athletic Training
- Master of Science program in Occupational Therapy

www.wilmington.edu
OPPORTUNITIES ABOUND FOR HIGHLY motivated, pre-college, Ohio students with original STEM-related ideas (see chart, following page). The Ohio Academy of Science (OAS) sponsors programs that can propel any student who has a good idea and persistence to see a complex project through to completion. All OAS programs provide out-of-the-classroom, real-world preparation for future STEM leaders and entrepreneurs. Numerous awards, scholarships, and networking opportunities are available. Students should talk to their teachers or contact the OAS directly. https://www.ohiosci.org

For over seven decades—using the traditional scientific-method based (i.e., science fair) format—Local, District, and State Science Days have allowed hundreds of thousands of Ohio students, grades 5 to 12, to complete independent research projects. Students present their research to expert judges at each level who provide both numerical scores and invaluable feedback to the students. Any 6th to 8th grade participant at State Science Day may be selected to participate in the Broadcom MASTERS national competition. https://ssd.ohiosci.org/

The Buckeye Science & Engineering Fair (BSEF) provides all Ohio’s students in grades 9-12 with an opportunity to qualify for the International Science & Engineering Fair (ISEF). The BSEF is a separate fair and is not affiliated with, nor requires participation in, either District Science Day or State Science Day. Melvin Scholars will be selected from the BSEF based upon the quality of their research project and can represent Ohio at the national-level American Junior Academy of Science (AJAS) annual meeting. https://www.ohiosci.org/bsef/

The Believe in Ohio Program is a free, comprehensive, curriculum-based, STEM and entrepreneurship program for Ohio high school students. Students compete for substantial scholarships through entrepreneurial and business plans. The program creates a “culture of innovation” and prepares students to compete in a rapidly changing labor market. https://www.ohiosci.org/believe-in-ohio

The Ohio Journal of Science (OJS) has published peer-reviewed, original contributions to science, education, engineering, and technology since 1900. The OJS—in exceptional circumstances—will publish fully peer-reviewed papers by pre-college students. https://www.ohiosci.org/the-ohio-journal-of-science

In addition to the above OAS sponsored programs, highly-motivated, pre-college STEM students should also investigate participation in these established and highly-selective programs: the Ohio Science Olympiad (K to 12; https://ohso.osu.edu/), the Regeneron Science Talent Search (rising grade 12; https://www.societyforscience.org/regeneron-sts/), the Ohio Junior Science and Humanities Symposium (grades 9 to 12; https://jshs.org/region/ohio/), the National Junior Science and Humanities Symposium (grades 9 to 12; https://www.jshs.org/), and the National Youth Science Camp (summer after high school graduation; http://www.nysf.com/w/programs/nyscamp/).
OHIO PRE-COLLEGE STUDENT STEM OPPORTUNITIES

Opportunity Flowchart

The Ohio Academy of Science
5930 Wilcox Pl. • Suite F • Dublin OH 43016
Phone 614-389-2182 • Fax 614-389-2470
info@ohiosci.org • https://www.ohiosci.org
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MAKING A DIFFERENCE EVERY DAY!

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WWW.KENT.EDU/EXPLORESTEM

With opportunities to engage as early as third grade, Kent State University is “all-in” on STEM and has received the highest designation for research – as one of only five schools in Ohio recognized for having a very high level of research activity.