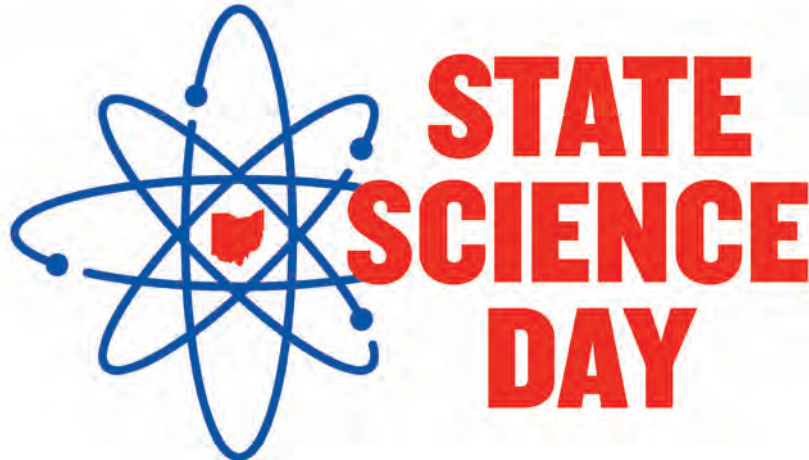


75TH ANNUAL

THE OHIO ACADEMY OF SCIENCE



VIRTUAL 4.0, 2023

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- Preparing for your future—academic and non-academic health professional school requirements.
- Applying and taking entrance exams for health professional schools.

WRIGHT STATE UNIVERSITY

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Copyediting and design—Alex Justice

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WHAT IS STATE SCIENCE DAY?



Now in its 75th 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, 614 students in grades 5–12 from 187 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 75th 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, the Ohio Tuition Trust Authority–College Advantage, Amgen, and Taft.

<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



ABOUT THE SPONSORS

AMERICAN ELECTRIC POWER FOUNDATION

The American Electric Power Foundation is funded by American Electric Power and its utility operating units. The Foundation provides a permanent, ongoing resource for charitable initiatives involving higher dollar values and multi-year commitments in the communities served by AEP and initiatives outside of AEP's 11-state service area. The Foundation focuses on improving lives through education from early childhood through higher education in the areas of science, technology, engineering and math, and by meeting basic needs for emergency shelter, affordable housing and the elimination of hunger. Other foundation support may be offered to protect the environment, support healthcare and safety, and enrich life through art, music and cultural heritage. | aep.com

AMGEN

Amgen harnesses the best of biology and technology to make people's lives easier, fuller, and longer. With roots in the biotech revolution, we are one of the world's leading independent biotech companies - fighting the toughest diseases and helping millions of people globally. Amgen's manufacturing capabilities ensure that we can reliably produce our life-saving products with the goal of reaching every patient, every time. Amgen's new final assembly and packaging facility in Central Ohio will assemble, label, and package autoinjectors, vials, and syringes to support the growing demand for Amgen's medicines. The new facility will be Amgen's most digital advanced facility, leveraging the latest innovations in manufacturing, while still prioritizing sustainability and minimizing environmental impact.

BATTELLE

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

CHARLES RIVER LABORATORIES

At Charles River we are passionate about our role in improving the quality of people's lives. Our mission, the excellent science that we perform, and our strong sense of purpose, guides us in all that we do. We approach each day with the knowledge that our research helps to improve the health and well-being of many individuals across the globe. Charles River Laboratories, which started as a one-man research models company, has grown into the world's largest preclinical contract research organization with a network of facilities across North America, Europe and Asia. This includes three laboratories in Ohio; Ashland, Cleveland and Spencerville. The worldwide support network allows us to act as a steadfast partner to our clients, from early molecule discovery to IND submissions. For more than 70 years we have seen technologies advance and new diseases emerge. To address these challenges, Charles River has carefully grown our portfolio of companies so that we can strategically anticipate tomorrow's drug development needs. While we can't predict what the future holds, we continue to kindle the spark that inspired our founding: an urgency to advance human health by supporting our clients' research, every step of the way. | criver.com

KENT STATE UNIVERSITY

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

Continue on next page

ABOUT THE SPONSORS (CONT.)

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

KOKOSING

Kokosing is one of the largest family-owned construction companies in the Midwest. Kokosing's primary business lines include industrial, transportation, buildings, pipelines, environmental and marine work. Additionally, Kokosing owns construction material supply companies. Known for unwavering integrity and exceptional safety and quality, Kokosing's companies provide extensive resources for its customers. Together with our team members, we invest our time and financial resources in the communities where we live and work. We strive to be socially and environmentally responsible and make a meaningful impact. | kokosing.biz

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/oeef

OHIO TUITION TRUST AUTHORITY - COLLEGE ADVANTAGE, OHIO'S 529 COLLEGE SAVINGS PLAN

Recognizing the importance of higher education, Ohio became one of the first states in the country to offer a 529 college savings plan, starting in 1989. CollegeAdvantage, Ohio's 529 Savings Program, encourages families nationwide to start saving for future college costs in a tax-advantaged manner that can build the account. Ohio's 529 plan offers tax-free growth, tax-free withdrawals for qualified higher education expenses, and a deduction in state income taxes for 529 contributions per beneficiary, per year, for residents of Ohio. CollegeAdvantage sponsors two plans, the Direct 529 Plan or Advisor 529 Plan, that provide multiple investment options, including ready-made, age-based or ready-made, risk-based portfolios and FDIC-insured banking options. Contributions can start as low as \$25 and there's no fee to open a Direct 529 account. CollegeAdvantage is Ohio's 529 College Savings Plan, but the account can be used at almost any school that a child dreams to attend. Funds in a 529 plan can be used in state, out of state, or out of country, at any university, college, or technical school that accepts federal financial aid. CollegeAdvantage is consistently highly rated by trusted industry resources such as Morningstar and SavingForCollege.com. | collegeadvantage.com



Did you know that Kent State University offers a world of educational opportunities in science, technology, engineering and mathematics through a variety of academic majors and hands-on STEM and innovation camps available to young learners as early as third grade?

Real science happens when students of all ages explore their STEM interests in [Kent State's top-rated makerspaces](#) and [state-of-the-art facilities](#) alongside educators who are leaders in their fields of study.

Some of the colleges, also known as the "academic homes" of STEM majors, minors, certificates and youth summer programs at Kent State, include:

- » **Ambassador Crawford College of Business and Entrepreneurship**
- » **College of Aeronautics and Engineering**
- » **College of Arts and Sciences**
- » **College of Education, Health and Human Services**
- » **College of Nursing**
- » **College of Public Health**
- » **And all seven Kent State Regional Campuses**

DISCOVER STEM EXPLORATION AND LEARNING OPPORTUNITIES FOR STUDENTS OF ALL AGES HERE:

WWW.KENT.EDU/EXPLORESTEM



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INSPIRING THE NEXT GENERATION OF INNOVATORS

Innovation does not happen in a vacuum. To ensure that the pace of scientific innovation continues to improve the lives of countless individuals, we must support those who will make the next big discovery. The Amgen Foundation, the philanthropic arm of biotechnology company Amgen, is deeply committed to inspiring and preparing the next generation of innovators. By sparking a passion for science and supporting young people who pursue it as a career, we hope to fuel scientific innovation and create a brighter, healthier future for all. Visit www.AmgenFoundation.org

Learn more about our latest initiative! Developed at Harvard and supported by the Amgen Foundation, LabXchange is a free, virtual lab experience that integrates digital instruction with mentoring opportunities. Visit www.LabXchange.org

AMGEN Foundation

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WELCOME

WELCOME

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

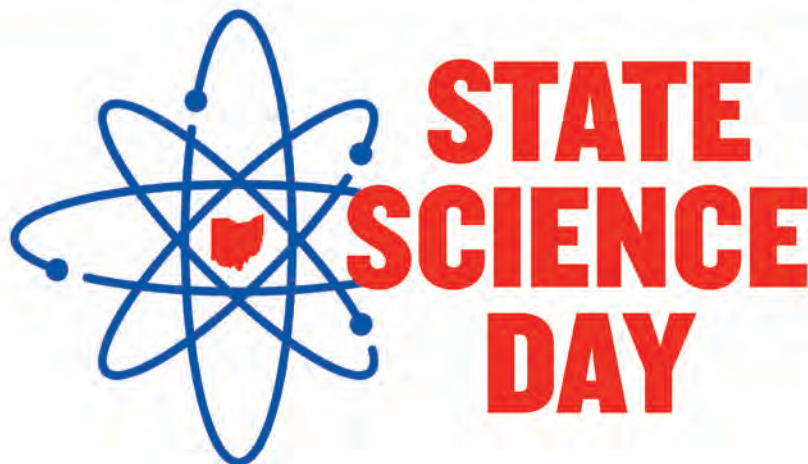
On behalf of The Ohio Academy of Science, it is my pleasure to welcome you to our Virtual State Science Day 2023, where we celebrate your hard work and scientific achievements. After some challenging years during the pandemic, we are emerging with a rekindled curiosity, improved collaborative tools, 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 2023, 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!



THE OHIO ACADEMY OF SCIENCE



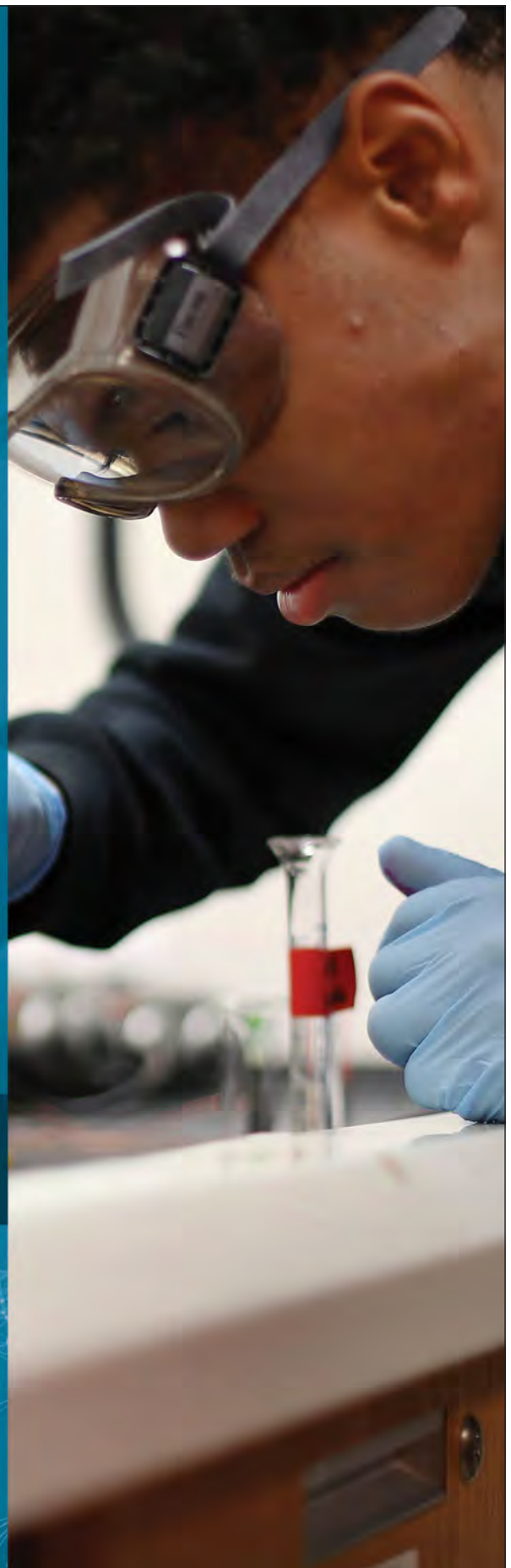
Great Scientists STEM from Columbus State

- Hands-on, career focused instruction prepares you for STEM careers.
- Qualified students can earn a **full tuition scholarship** through the Future Scientists of Ohio Scholars Program.
- Join the STEM Club to meet peers and experts passionate about the field.
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DISTRICT SCIENCE DAY MAP

THE OHIO ACADEMY
OF SCIENCE



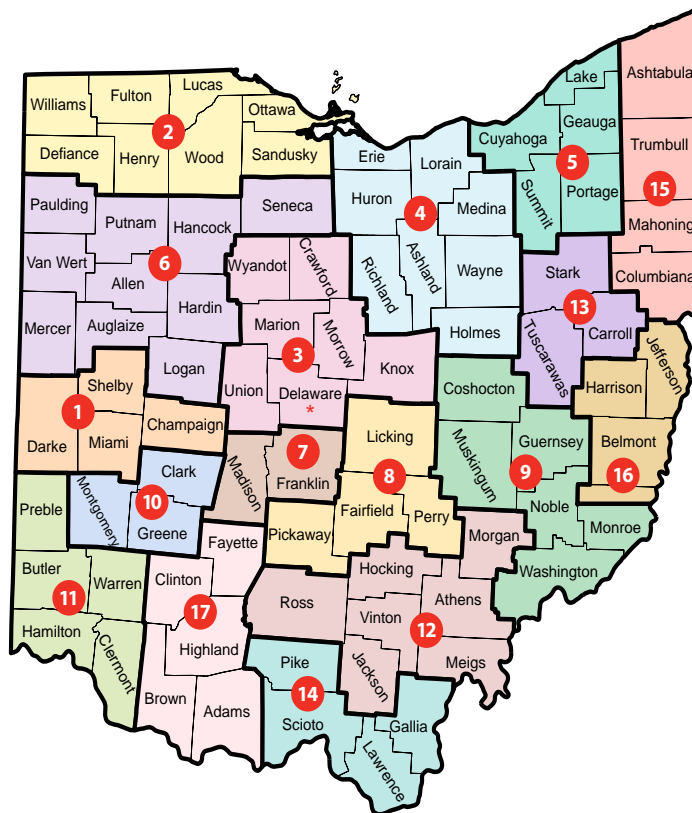
*State Science Day
Celebration and
Symposium
will be hosted by*



THE OHIO STATE
UNIVERSITY

2023 District Science Days

<https://www.ohiosci.org/science-days/>



District Science Days

Participants for the 2023 District Science Day will register via ProjectBoard. **Each of the 17 District Fairs will be held in-person.** Be sure to visit your District's Science Day website for event schedule and additional information that may apply for the event. A *virtual* District Science Day will be held as "District 18". Please check with your District to see if they have a registration deadline that is before February 28, 2023.

Registration site for all District Science Days: <https://projectboard.world/oas>

The deadline to have all required information in ProjectBoard for District Science Day is February 28, 2023.

District Science Days students eligible for State Science Day will have until April 2, 2023 at 11:59pm to register for State Science Day.

State Science Day Virtual 4.0

Judging for State Science Day will be virtual via ProjectBoard. Students can make changes, March 26-April 2, 2023, to any questions, photos, videos in ProjectBoard that were used at DSD before the State Science Day registration deadline. A non-refunded fee of \$60.00 per student is due at the time of registration. On April 24, 2023, State Science Day results will be announced, and the students of Superior rated projects will receive an invitation to the State Science Day Celebration and Symposium to be held at The Ohio State University on Saturday, May 13, 2023 in the Student Union. If invited, students and family members will need to RSVP by May 1, 2023.

The Ohio Academy of Science | 5930 Wilcox Place Ste. F | Dublin, OH 43016 | Phone: 614-389-2182 | Email: info@ohiosci.org

DISTRICT SCIENCE DAY MAP (CONT.)

# - Location and Date	Contact and Website
1 – Edison State CC March 11, 2023	Dr. Martin E. English - info@ohioumvsd.com https://www.ohioumvsd.com/
2 – Univ of Toledo March 11, 2023	Dr. Mark Camp - mark.camp@utoledo.edu https://www.utoledo.edu/nsm/district-science-day/
3 – OSU Marion March 25, 2023	Dr. Qudsia Tahmina - tahmina.1@osu.edu https://osumarion.osu.edu/alumni-initiatives/initiatives/education/sciencefair/student-registration/
4 – Ashland Univ March 25, 2023	Dr. Jeffrey Weidenhamer - jweiden@ashland.edu https://www.ashland.edu/cas/mohican-district-science-day
5 – Univ of Akron March 18, 2023	Dr. Ali Dhinojwala - ali4@uakron.edu https://www.uakron.edu/wrsd/
6 – Ohio Northern March 25, 2023	Dr. Jamie Siders - j-siders@onu.edu https://www.onu.edu/camps-and-events
7 – Columbus State CC March 18, 2023	Dr. Matthew Saelzler - msaelzle@cscce.edu https://www.cscce.edu/docs/science/
8 – OU Lancaster March 18, 2023	Dr. Sandra L. Doty - dotys@denison.edu https://district8scienceDistrictnceday.weebly.com/
9 – Zane State College March 25, 2023	Ms. Kathryn Hooper - khooper@zanestate.edu
NEW LOCATION for 2023	
10 – Miami Valley CTC March 25, 2023	Dr. Martin E. English - District10ScienceDay@gmail.com https://www.ohiosci.org/district-10/
11 – Univ of Cincinnati March 11, 2023	Mr. Rickey Terrell - ucscifair@ucmail.uc.edu https://cech.uc.edu/about/southwest-ohio-science-fair.html
12 – Ohio Univ March 25, 2023	Dr. Natalie Kruse - krusen@ohio.edu www.ohio.edu/scifair/
NEW LOCATION for 2023	
13 – Kent State Univ - Tuscarawas March 4, 2023	Ms. Laurie Donley - tuscscienceday@kent.edu https://www.kent.edu/tusc/scienceday
14 – Univ Rio Grande March 25, 2023	Dr. John Means - jmeans@rio.edu https://www.rio.edu/science-day
15 – Youngstown State Univ March 18, 2023	Dr. Michael Serra - maserra@ysu.edu https://ysu.edu/lake-to-river
16 – Belmont College March 18, 2023	Mr. Chris Clantz - cclantz@belmontcollege.edu
17 – Wilmington College March 25, 2023	Dr. Russell Kincaid - rkincaid@wilmington.edu https://www.wilmington.edu/science-day/
18 – Virtual Science Day - OAS office March 25, 2023	Mrs. Angela McMurry - amcmurry@ohiosci.org Central Office Phone 614-389-2182 https://ssd.ohiosci.org/

*Districts 8, 9, 12, 13, 14, 15, 16, and 17 registration fees are covered by a grant to the Voinovich School of Leadership and Public Service at Ohio University

ACKNOWLEDGMENT OF SUPPORTERS

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Mrs. Carolyn Shaw-Lowry

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Mr. Don R Grubbs

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Ms. Claire B. Williams

*Thank You
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HOW TO BECOME A SPONSOR

If you, your company, foundation, or organization are interested in providing title sponsorship, general support, exhibits, scholarships, or sponsored awards, please contact:

Michael E. Woytek, Executive Director
The Ohio Academy of Science
5930 Wilcox Pl., Suite F
Dublin, OH 43016
Phone: (614) 389-2182
Fax: (614) 389-2470
E-mail: mwoytek@ohiosci.org
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“

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Computer Science • Data Science
Environmental Science
Forensic Science • Geology
Mathematics • Microbiology
Neuroscience • Physics
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Bowling Green State University provides students with opportunities to make change through innovative partnerships and high-impact research. BGSU is a place to belong, a place to excel.

BGSU

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2023 OFFICIALS



The Ohio Academy of Science

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*Fostering curiosity, discovery and
 innovation to benefit society.*

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President: Dr. Charles Flower

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Love science? Fascinated by technology? The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES) invites you to visit either our Columbus or Wooster campus to learn about opportunities to pursue majors in science and technology. With 21 bachelor's degree majors, 24 associate degree majors, and 34 minors, CFAES has what you're looking for. You're sure to discover your passion for science and technology!

Schedule a Columbus campus visit at go.osu.edu/cfaesvisit or a Wooster campus visit at ati.osu.edu/visit.

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 COLLEGE OF FOOD, AGRICULTURAL,
 AND ENVIRONMENTAL SCIENCES

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.



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**When I pull apart these big robots
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And I want to go into my job and
be excited to be there every day.
So if I'm going to be excited about
something I might as
well make that my career."**

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2023 MULTI-YEAR STUDENTS

CONGRATULATIONS TO OUR 2023 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

Charley Clyne, 11
Julie Sebastian, 11
Emily Swope, 12
Wyatt Vick, 11

6-year Awardee

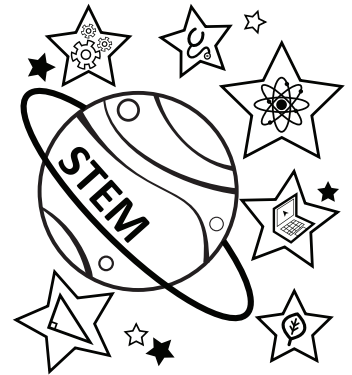
Kennedy Brehm, 12
Luca Gagliano, 12
Sadhil Mehta, 10
Bryn Morgan, 12
Marissa Shook, 12
Dana Stan, 10

5-year Awardee

Winnie Bodin, 9
Michael Ge, 10
Liam Hartley, 10
Kara Jones, 10
Addison Mullins, 10
Allison Payton, 9

4-year Awardee

Jacob Rice, 12
Aditya Varma Sangu, 8
Aviraj Sooin, 8
Laasya Acharya, 10
Tarun Batchu, 9
Johan DeMessie, 12
Luke Doseck, 11
Kaitlyn Ernst, 11
Xinrui Han, 11
William Kohut, 11



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2022 STATE SCIENCE DAY AWARDS

2022 DR. LYNN E. ELFNER YOUNG SCIENTIST AWARDEES

The 2022 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.

Abigail Alberta
Sam Alter
Ty Beard
Brady Beisner
Samuel Brown
Presley Burkholder
Jack Charlton
Jasmine Chen
Allie Depenbrock
Kierstin Drew
Omar Elbadawy
Tyler Feix
Kensie Funk
Natalie Gerstenberger
Cora Gutierrez

Neha Hariharan
Ava Kidd
Emmett Kinnison
Prem Koshal
Chloe Lucas
Clare McCabe
Sammy McGill
Elijah Moore
Finley Noel
Jane Odille
Coltrane Parsons
Emily Parsons
Raiden Quinn
Meg Riter
Cristian Schrock

Jillian Seibert
Maximilian Seifried
Scarlett Shupe
Kiahna Smith
Connor Sullivan
Sophia Szolosi
Jordan Thornburg
Kendall Wild
Avery Wyan
Carey Yant
Ryan Zand

THE 2022 GOVERNOR'S THOMAS EDISON AWARDS FOR EXCELLENCE IN STEM EDUCATION AND STUDENT RESEARCH

Anderson High School, Cincinnati
Anna High School, Anna
Archbishop Alter, Kettering
Bellbrook Middle School, Bellbrook
Big Walnut Intermediate, Sunbury
Bishop Flaget, Chillicothe
Bishop Leibold E&W Campus, Dayton
Buchtel Community Learning Center, Akron
Carroll High School, Dayton
Chardon Middle School, Chardon
Dayton Christian School, Miamisburg
East Richland Christian School, St. Clairsville
Ellet CLC, Akron
Hyre CLC, Akron
Holy Angels, Sidney
Holy Trinity, Avon
I Promise School, Akron
Incarnate Word Academy, Parma Heights
Lehman Catholic High School, Sidney
Litchfield Community Center, Akron
Miller South VPA, Akron
National Inventor's Hall of Fam STEM HS, Akron

National Inventor's Hall of Fam STEM MS, Akron
New Lexington Middle School, New Lexington
North High School, Akron
Northeastern High School, Springfield
Ottawa Hills Junior/Senior High School, Ottawa Hills
River Valley High School, Bidwell
St. Agatha-St. Aloysius, Cleveland
St. Albert The Great, N. Royalton
St. Charles Borromeo High School, Kettering
St. Francis Xavier, Medina
St. Jude, Elyria
St. Mary, Chardon
St. Mary Immaculate Conception, Wooster
St. Paschal Baylon, Cleveland
St. Peter, N. Ridgeville
St. Sebastian, Akron
St. Raphael, Bay Village
St. Rose, Perrysburg
Sts. Joseph & John Interparochial, St. Clairsville
Sylvania Northview High School, Sylvania
Turpin High School, Cincinnati
Unioto ES, Chillicothe

2022 STATE SCIENCE DAY AWARDS (CONT.)

THOMAS EDISON AWARDS

SPONSORED BY: **Ohio** Development Services Agency



THE 2022 GOVERNOR'S THOMAS EDISON AWARDS FOR EXCELLENCE IN...

Biotechnology & Biomedical Technologies

Grades 10-12

1st place – Kaitlyn Ernst, Laurel School
2nd place – Hans Swain, The University School
3rd place – Laksh Dhir, Dublin Coffman High School

Grades 7-9

1st place – Adharsh Narendrakumar, Birchwood School of Hawken
2nd place – Brooke Gemechu, Birchwood School of Hawken
3rd place – Cora Gutierrez, Tri-Village High School

Advanced Materials

Grades 10-12

1st place – Destynn Keuchel, Hawken School
2nd place – Neil Tivakaran, 10 Carroll High School
3rd place – Kennedy Brehm, Bloom-Carroll High School

Grades 7-9

1st place – Evan Dan, Solon Middle School
2nd place – Ethan Corsmo, St Gertrude
3rd place – Nina Rando, St Rose

Information Science & Technology Research

Grades 10-12

1st place – Mihai Crisan, Upper Arlington High School
2nd place – Mihir Vador, Dublin Jerome High School
3rd place – Kareem Fareed, The University School

Grades 7-9

1st place – Laasya Acharya, William Mason High School
2nd place – Carter Schrock, Bath Middle School
3rd place – Shritha Kutcherlapati, Bethel Middle School

Advanced or Alternative Energy

Grades 10-12

1st place – Emir Tali, William Mason High School
2nd place – Claire Loeffler, Bloom-Carroll High School
3rd place – Ethan Varner, Versailles High School

Grades 7-9

1st place – Bryce McEachen, 10-Carroll High School
2nd place – Rebecca Jacob, Solon Middle School
3rd place – Krisha Naik, Lakota Hopewell Junior School



State Science Day, 2017

2022 STATE SCIENCE DAY AWARDS (CONT.)

2022 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.

2022 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 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
William Mason High School – Mason

THE OHIO TUITION TRUST AUTHORITY 2022 COLLEGE ADVANTAGE 529 PLAN AWARD

Ava Kidd – Liberty Township
Brady Beisner – New Madison
Emmett Kinnison – Chillicothe
Ethan Mullins – Wheelersburg
Grant Lee – Solon
Hala Hinch – Sylvania
Jad Hinch – Sylvania
John Adamsky – Martins Ferry

Jordan Thornburg – Centerville
Kara Stewart – Sidney
Mary Cunningham – Springfield
Omar Elbadawy – Cleveland
Quinton Smith – Ottawa Hills
Raiden Quinn – New Madison
Sophia Szolosi – Athens
Tarun Batchu – Powell



SCHOLARSHIPS AND SPONSORED AWARDS

American Chemical Society Columbus Section - Chemical Sciences Award - 134

Sponsor: American Chemical Society, Columbus Section

American Physiological Society Award - 248

Sponsor: The American Physiological Society, as judged by the Ohio State University Chapter of Sigma Xi

American Water Works Association Award - 072

Sponsor: American Water Works Association, Ohio Section

Animal Science/Veterinary Medicine Award - 256

Sponsor: Martin E. English, DVM

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

Sponsor: Association of Ohio Music Therapists

Association of Ohio Pedologists Soil Science Award - 262

Sponsor: Association of Ohio Pedologists

Behavioral Science Award - 028

Sponsor: Ohio Psychological Association; regional psychological associations

Believe in Ohio STEM Entrepreneurship Award - 257

Sponsor: The Ohio Academy of Science

Bobcat tuition scholarship in Biological Sciences - 249

Sponsor: Department of Biological Sciences, Ohio University

Broadcom Coding with Commitment - 265

Sponsor: Broadcom Foundation

Columbia Gas of Ohio State Science Day Scholarship - 252

Sponsor: Columbia Gas of Ohio

David J. Horn Stone Lab Entomology Scholarship - 234

Sponsor: Ohio State University Department of Entomology

Dick Goddard Honorary Young Atmospheric Scientist Award - 070

Sponsor: American Meteorological Society; Eric Wertz; Northeast Ohio AMS

DoD STEM Leadership Award - 261

Sponsor: Society for Science & The Public

Dr. Lynn E. Elfner Young Scientist Award - 246

Sponsor: The Ohio Academy of Science

Engineering Achievement Award - 059

Sponsor: Engineers Foundation of Ohio

Evolutionary Biology Award - 190

Sponsor: The Ohio State University Chapter of Sigma Xi

EWI Award - 058

Sponsor: EWI

Excellence Award for Civil Engineering Projects - 061

Sponsor: American Society of Civil Engineers, Central Ohio Section & Ohio Council

Food Science and Engineering Award - 031

Sponsor: Nestle Product Technology Center, Marysville

Future Physician - Scientist Award - 148

Sponsor: The Ohio State University, College of Medicine and Public Health and OSU Health Systems

Gordon J. Aubrecht Award for Outstanding Physics Projects - 067

Sponsor: 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

Sponsor: Ohio Environmental Education Fund

Governor's Thomas Edison Award for Advanced Materials - 106

Sponsor: Ohio Development Services Agency

Governor's Thomas Edison Award for Advanced or Alternative Energy Scholarship - 217

Sponsor: Ohio Development Services Agency

Governor's Thomas Edison Award for Excellence in Biotechnology & Biomedical Technologies - 033

Sponsor: Ohio Development Services Agency

Governor's Thomas Edison Award for Excellence in Information Science & Technology Research - 147

Sponsor: Ohio Development Services Agency

Green Energy Ohio Student Achievement Award in Advanced or Alternative Energy - 260

Sponsor: Green Energy Ohio

Interdisciplinary Research Award - 133

Sponsor: Sigma Xi, Ohio State Chapter

JLG Excellence in Engineering Award - 259

Sponsor: JLG (an Oshkosh Corporation Company)

Milt Austin Aquatic Science Award - 030

Sponsor: Ohio Chapter of The American Fisheries Society

Nationwide Children's Hospital Research Institute Trainee Association (RITA) - 238

Sponsor: Nationwide Children's Hospital Research Institute Trainee Association (RITA)

Ohio Environmental Health Association Award - 087

Sponsor: Ohio Environmental Health Association

Ohio Northern University State Science Day Scholarship - 244

Sponsor: Ohio Northern University

Ohio Oil and Gas Energy Education Program Award - 139

Sponsor: Ohio Oil and Gas Energy Education Program Award

Ohio Soybean Bioscience Award - 018

Sponsor: The Ohio Soybean Council Foundation

Ohio Soybean Bioscience Team Award - 230

Sponsor: The Ohio Soybean Council Foundation

Osmon Ramsey Environmental & Natural Science Award - 258

Sponsor: The Ohio Academy of Science

Osteopathic Medical Award - 145

Sponsor: Ohio Osteopathic Association

OTTA \$1,000 Scholarship - 239

Sponsor: Ohio Tuition Trust Authority

OTTA \$1,500 Scholarship - 240

Sponsor: Ohio Tuition Trust Authority

SCHOLARSHIPS AND SPONSORED AWARDS (CONT.)

Outstanding Project in Plant Pathology - 182

Sponsor: The Ohio State University
Department of Plant Pathology

OWEA Water Environment Science Award - 197

Sponsor: Ohio Water Environment
Association

OWEA Water Environment Science Award - 086

Sponsor: Ohio Water Environment
Association

Plant Pathology Scholarship at The Ohio State University - 157

Sponsor: The Ohio State University
Department of Plant Pathology

Science of Food - 169

Sponsor: The Ohio State University
Department of Food Science &
Technology

Society of Experimental Test Pilot Excellence in Flight Sciences - 247

Sponsor: The Society of Experimental Test
Pilots (SETP)

Statistical Analysis Award - 023

Sponsor: American Statistical Association,
Columbus Chapter

Stone Laboratory Scholarship - 019

Sponsor: The Friends of Stone Laboratory,
The Ohio State University

The Lemelson Early Inventor Prize - 254

Sponsor: The Lemelson Foundation via
Society for Science & The Public

The Ohio State University College of Engineering Scholarship - 218

Sponsor: The Ohio State University
College of Engineering

Thermo Fisher Scientific Junior Innovators Challenge - 250

Sponsor: Society for Science & The Public

University of Akron Scholarship - 011

Sponsor: University of Akron

University of Toledo Science Achievement Scholarship - 012

Sponsor: University of Toledo

UNOH Robotics & Automation Technology Scholarship - 264

Sponsor: University of Northwestern Ohio

Veterinary Medicine Award - 050

Sponsor: Ohio Veterinary Medical
Association Auxiliary

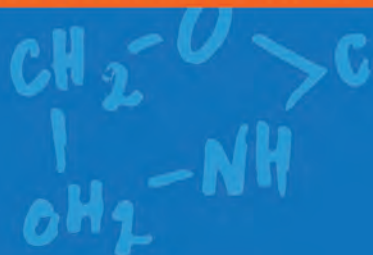
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The dedication and expertise of the judges makes it all possible! Above, the judge's meeting in OSU's St. John Arena at the 2019 State Science Day.

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Alumni Association

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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 or 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.

Letter to a Young Scientist

Science Pays in Many Ways

By JAMES B. SHORT¹

James Short attended the Bryan (Ohio) City School District, where he had his first experience in science fairs. Following his formal education at The Ohio State University and Defiance College, he taught science at Gorham Fayette Local Schools for a quarter century. Understanding the transformative effect of science fair projects in his own life, during his teaching career he emphasized the importance of independent science projects for all students. The result was a legacy of high school students excelling in local, state, and national-level science fairs and science days—including the International Science and Engineering Fair. After retirement from teaching he has continued his involvement in science fair activities, and is currently the Director of the Northwest Ohio Science and Engineering Fair. During his long career he has come to understand the many ways that science education can benefit everyone in society. Mr. Short is a Fellow of The Ohio Academy of Science.

THIS MESSAGE WILL ENCOURAGE you to investigate science. If you are from my area of the state—northwest Ohio—you will probably have heard my standard statement: “**Science pays in many ways!**” If you have not heard this, let me explain.

A Long Look Back

I am a very “seasoned” citizen. I participated in my Local and District Science Days back in the 1960s. After graduating from The Ohio State University with a fisheries management major, and no employment possibilities, I attended Defiance College to obtain my teaching credentials. I was hired as half of the science teaching faculty at Gorham Fayette Local Schools (GFHS) and completed my employment in the same building and room(s) 25-years later.

Science Pays in Many Ways

My statement—*science pays in many ways*—has developed over these 60-plus years. My early 7th

grade science project started the process by helping me become interested in all areas of science. (Before that time, all I wanted to do with science was to go fishing!) Now I was able to see all the necessary research, planning, writing, building, and practice needed. I was also forced to speak to my adult judges.

Teaching not only furthered my opportunities to payback my love for science but also to keep receiving these payments.

Each year my projects became more involved and detailed, yet I was intrigued by the questions and situations that kept occurring. I was pushed to learn new mathematical, mechanical, and social skills. I met other students, teachers, and specialists. Each of these occurrences I see as a *payment* from science, since I was gaining information, knowledge, and social interaction.

Teaching not only furthered my opportunities to payback my love for science but also to keep receiving these payments. Yes, the salary of a teacher was much appreciated and needed; however, the payments have arrived by many different methods. I re-started, and further developed, a local science fair in my school district. Grades 7 to 11 in science classes were required to have projects. The first year was so successful that one of the students was selected as a finalist at the International Science and Engineering Fair (ISEF) held in Minneapolis-St. Paul, Minnesota. What a payment, not only

I am a very “seasoned” citizen. I participated in my Local and District Science Days back in the 1960s.

for me, but also for the student! There were several other payments that I observed. Not only was I invigorated by the success of my students but also the students were excited that they were able to finish a project of this magnitude—and achieve recognition for their academic efforts. Even many educationally challenged students, who had never had success in their educational activities, were recognized with Superior and Excellent ratings.



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The local science fair participation was followed by district, regional, state, and international levels of presentation, display, and competition by my students. These students continued to prove that science pays in many ways: trips and major cash awards were won; they earned top placements in multiple categories of the middle and high school divisions of competition; plus they received many employment opportunities, lab experiences, book awards, and equipment awards.

For several years, students from our school won the highest or most Superiors at District Science Day at Defiance College. We usually had over 24 participants from our small school (about 600 students, K-12). After 25 years of teaching, the school had many ISEF finalists and student observers. The trophy case also displayed 4 prestigious Shaw Awards from the State Science Day. All of the advanced science day participants are considered *champions*; the payment they received was the knowledge gained in planning, making improvements to their projects, and the experience of the competition—as well as any added monetary awards.

How many students in a small school can be called state champions or even state qualifiers? At one time GFHS was in the top 10 schools sending students to the State Science Day, averaging about 6 students per year.

The Payments from Science... For the Teachers

During my teaching years, I became involved with the District Science Day, State Science Day, and Regional Science Fair. I have been a district councilperson and a State Junior Academy Council member. Currently I am the Director of the Northwest Ohio Science and Engineering Fair, which sends students to ISEF.

After 25 years of teaching, the school had many ISEF finalists and student observers. The trophy case also displayed 4 prestigious Shaw Awards from the State Science Day.

Not only was I invigorated with the success of my students but also the students were excited that they were able to finish a project of this magnitude—and achieve recognition for their academic efforts.

Payments I have received from working with students include:

1. Being invited by a regional student to attend, as their guest, a weeklong expenses-paid workshop at the Department of Energy's Oak Ridge National Laboratory, Oak Ridge, Tennessee
2. Being selected as one of the two Ohioans to be part of the 8-week Department of Energy Research Program at the Pacific Northwest National Laboratory in Pasco, Washington
3. Being able to attend over 20 International Science and Engineering Fairs along with the top student-scientists in the world
4. Being provided the opportunity to meet and talk with outstanding science educators from around the world
5. Being privileged to meet Nobel laureates
6. Being fortunate to witness my students' successes and achievements associated with their projects

The Payments from Science... Even More for the Students

More specifically, here are some benefits that I have witnessed students achieving:

1. Receiving a \$50,000 college scholarship (many)
2. Employment opportunities during the summer after they graduate high school
3. Receiving \$1,000 cash awards
4. Receiving \$500 cash awards
5. Receiving a 4-year, \$18,000 scholarship
6. Introduction to a university with a subsequent enrollment into that university (scholarship)
7. One-week expenses-paid US Navy experience
8. Full college tuition and research space
9. Full college expenses from associated scholarships through PhD
10. Early placement into advanced medical field education
11. National recognition via television or radio broadcast
12. Meeting famous people, such as Nobel laureates and a legendary football coach
13. Meeting a future spouse
14. Discovering unknown interests
15. Improved self confidence

LETTER TO A YOUNG SCIENTIST (CONT.)

OHIO JOURNAL OF SCIENCE

JAMES SHORT

97

Science Builds Many Key Life Skills

Science pays beyond the possible *glory* awards. Science fulfills the need for many skills including: organization, time management, materials procurement, planning, reading, writing, research, exploring new technologies, mathematics, verbal and visual presentation, data analysis, display planning and preparation, following rules, public speaking, analyzing media validity, patience, practice, and social interaction.

Here is a final story for you. I had a student who was very diligent and completed her science fair projects as instructed, although I knew she did not like the assignments. She went to college and as a senior was told that she had to have a senior project. I am guessing that she grumbled, but went ahead and prepared for the assignment as she had

been taught back in middle and high school. After completion she wanted to get it out of the way, so she volunteered to go first. Her classmates were not happy with her; she set the expectations so high they had to scramble to even come close to her presentation. A display board, reports, pictures, and models were used—just like she had learned. She passed!

Yes, I have received many payments from science. But I am most happy for the payments that I see coming to young student scientists who put in the work, avoid the hazards that appear, and successfully complete and present their projects at a science day or science fair.

¹ Address correspondence to James B. Short.
Email: jamesb.short@gmail.com



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Mrs Elizabeth Yokum, Beavercreek
Ms Toyyibat Yussuph, Scottsdale AZ
Dr Ellen Zalucha, Hilliard

*Thank You
Judges!*



STATE SCIENCE DAY REFLECTIONS

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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Farajuddin Abbas

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Unity Academy, Columbus
A Bloody Mystery

Gulrose Abdullah

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Incarnate Word Academy, Parma
Hts
Do different types of music genres affect your mood and heart rate?

Laasya Acharya

Grade: 10 Individual project
William Mason High School, Mason
Gaea Project

Max Adam

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Terrace Park
Blown Away with Germs

Chloe Adkins

Grade: 12 Individual project
Fairland High School, Proctorville
Titration Station

Rilee Adkins

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Leena Ahmed

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Liban Ali

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Adam Ayad

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Halle Baum

Grade: 8 Individual project
East Richland Christian Schools, St Clairsville
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Antonia Bazzoli

Grade: 12 Individual project
Ottawa Hills High School, Ottawa Hills
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Dhanush Bearely

Grade: 11 Individual project
Seven Hills School, Cincinnati
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Lyla Beebe

Grade: 10 Individual project
Upper Arlington High School, Upper Arlington
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Morgan Beaver

Grade: 6 Individual project
St Vincent De Paul, Mt Vernon
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Marina Bell

Grade: 7 Individual project
Bishop Leibold E And W Campus, Dayton
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Sophia Bender

Grade: 5 Individual project
St Paul, Salem
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Emily Bennardo

Grade: 7 Individual project
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Kylie Bennett

Grade: 7 Individual project
Bellbrook Middle School, Bellbrook
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Kaden Bereczky

Grade: 9 Individual project
Northeastern Middle/High School, Springfield
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Grade: 5 Individual project
John F. Kennedy Catholic Lower School, Warren
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Brailee Beun

Grade: 12 Individual project
Northwestern High School, W Salem
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Shreyans Bhavaraju

Grade: 10 Individual project
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Precious Bibbs

Grade: 9 Individual project
Global Impact STEM Academy, Springfield
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Sydney Biedenbach

Grade: 5 Individual project
Endeavor Elementary School, West
Bridges of Cincinnati

Aiden Bills

Grade: 7 Individual project
St Columban, Loveland
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ðŸŒˆDolly Birb

Grade: 7 Individual project
Bishop Leibold E And W Campus, Dayton
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Evelyn Bishop

Grade: 8 Individual project
St Paul School, Westerville
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Kelsey Bisignani

Grade: 6 Individual project
Bellbrook Middle School, Bellbrook
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Ann Bixel

Grade: 12 Individual project
Upper Arlington High School, Upper
Arlington
*How adoption stories affect
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Jackson Blanda

Grade: 5 Team project
New Albany Intermediate School,
New Albany
*What's the Best Golf Ball for a Youth
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Collin Bloomfield

Grade: 9 Team project
Turpin High School, Cincinnati
Effect of Time on Bacterial Growth

Joseph Blumensaadt

Grade: 11 Individual project
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Winnie Bodin

Grade: 9 Individual project
Benjamin Logan High School,
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*Biological and Chemical Assessment
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Drew Bolchalk

Grade: 8 Individual project
St Paul School, Westerville
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Luke Boles

Grade: 7 Individual project
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City
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Ethan Botkin

Grade: 10 Individual project
Urbana High School, Urbana
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Megan Brandt

Grade: 9 Individual project
Archbishop Alter, Kettering
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Kennedy Brehm

Grade: 12 Individual project
Bloom-Carroll High School, Carroll
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Abby Brown

Grade: 11 Individual project
Carroll, Dayton
*The Effects of Chemical and Organic
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Ian Brown

Grade: 12 Individual project
Miami Valley CTC, Englewood
*The Influence of Different Weight
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Jack Brown

Grade: 6 Individual project
St Paul, Salem
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Jonah Brown

Grade: 5 Team project
Independence Elementary School,
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Michael Bruhl

Grade: 7 Team project
Bowling Green Christian Acdmy,
Bowling Green
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Mallory Bryan

Grade: 10 Individual project
Liberty Union High School,
Baltimore
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Caleb Bryant

Grade: 8 Individual project
Global Impact STEM Academy,
Springfield
*How does the Location of a Soil
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Kimberly Burk

Grade: 12 Individual project
Bloom-Carroll High School, Carroll
*How the Pigment in Models Made
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Jonah Burns

Grade: 6 Individual project
Chillicothe Intermediate School,
Chillicothe
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Christopher Burrell

Grade: 5 Individual project
St Ambrose, Brunswick
*Will a Caterpillar Grow Faster in Hot
or Cold Weather?*

Keith District 10 Butler

Grade: 9 Individual project
Archbishop Alter, Kettering
Fire Retardant Salt Solutions

Henry Byrd

Grade: 7 Team project
Bishop Flaget School, Chillicothe
*Which Drink Has the Most
Electrolytes?*

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Teagan Carlin

Grade: 6 Individual project
St Francis Xavier, Medina
How do different liquids affect plant growth?

Annabell Carpenter

Grade: 8 Individual project
Bishop Leibold E And W Campus,
Dayton
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Aaris Cartwright

Grade: 9 Individual project
Fairland High School, Proctorville
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Susie Caton

Grade: 6 Individual project
Blessed Sacrament, Newark
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Eva Chakrabarti

Grade: 8 Individual project
Solon Middle School, Solon
Iron Absorption In Different pH

Maxwell Chandar-Kouba

Grade: 12 Individual project
Ottawa Hills High School, Ottawa
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The Search for the First Stars

Srestha Chattopadhyay

Grade: 11 Individual project
Sylvania Northview High School,
Sylvania
*Development of Novel FLT3
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Resistant Leukemia*

Nathan Chege

Grade: 8 Individual project
The University School, Shaker Hts
*How Weather Conditions Affect Golf
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Annie Chen

Grade: 8 Individual project
Fairland Middle School, Proctorville
What Could Affect Lung Capacity?

Grace Chen

Grade: 12 Individual project
Mentor High School, Mentor
*Dendritic Inhibition Through
Chitosan Hydrogel Membrane
Covered Zinc Anode of Rechargeable
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Molly Chhabra

Grade: 8 Team project
Mason Middle School, Mason
*Which Material Properties Block Out
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Sahas Chhabra

Grade: 8 Individual project
The University School, Shaker Hts
*Comparing Water Saving
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Vedant Chhabra

Grade: 8 Team project
Mason Middle School, Mason
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Mukund Chimalakonda

Grade: 8 Individual project
Solon Middle School, Solon
*"My Room is Humid, But Is My
Room Air Clean"*

Gabriel Chupp

Grade: 12 Team project
Northwestern High School, W Salem
Redesigning The Lyre and Flip-Folder

Courtney Clark

Grade: 12 Individual project
Howland High School, Warren
*Rain Water vs. Other Types of Water
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Nina Clark

Grade: 9 Team project
Ottawa Hills High School, Ottawa
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*How does body hair amounts affect
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Josiah Close

Grade: 5 Individual project
East Richland Christian Schools, St
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Comparing the Efficiency of Popcorn

Charley Clyne

Grade: 11 Team project
Zane Trace High School, Chillicothe
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Jaeden Cole

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Upper Valley Career Center, Piqua
The science of dynamic stretching

Abigail Coleman

Grade: 7 Individual project
St Sebastian, Akron
*The Dirt on Hydroponic Growing
Mediums: Which is Best?*

Easton Collier

Grade: 6 Individual project
Chesapeake Middle School,
Chesapeake
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Ian Collins

Grade: 7 Team project
St Ambrose, Brunswick
Raspberry Pi Laser Tripwire

Lauren Conway

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St Paul School, Westerville
The Effect of Music on Heart Rate

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Ellie Cook

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Holy Trinity, Somerset
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Caedon Cooper

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O'Keefe Cooper

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Lehman High School, Sidney
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Giancarlo Corallo

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St Paul, Salem
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Alex Covey

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Mary Grace Crabtree

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St Mary, Lancaster
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Callum Crawford

Grade: 8 Individual project
Global Impact STEM Academy,
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Jackson Crinion

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St Charles Borromeo, Kettering
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Sam Culham

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Dayton Christian School,
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Kaitlyn Cunningham

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St Vincent De Paul, Mt Vernon
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Evan Dan

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Solon High School, Solon
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Gabriel Daniel

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Anna High School, Anna
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Elise Daniels

Grade: 5 Individual project
Trinity Lutheran, Toledo
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Riddhimaan Das

Grade: 7 Individual project
Mason Middle School, Mason
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Scarlet Davis

Grade: 7 Individual project
St Brendan, N Olmsted
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Jack D'Cruz

Grade: 9 Individual project
The University School - College
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Lucas D'Cruz

Grade: 7 Individual project
Shaker Hts Middle School, Shaker
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Olivia Dean

Grade: 6 Individual project
East Richland Christian Schools, St
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Radiation Comparison Between Three Communication Apps

Preston DeBusk

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Dayton Christian School,
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Evan DeKay

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Bloom-Carroll Middle School, Carroll
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Johan DeMessie

Grade: 12 Individual project
William Mason High School, Mason
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Logan Denhardt

Grade: 8 Individual project
Dayton Christian School,
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Manzili Denis

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Brooke Dennis

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New Albany Intermediate School,
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Ella Dennis

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New Albany Intermediate School,
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Alexandra Depenbrock

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St Michael Consolidated, Ripley
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Javier Descalzo

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Bishop John King Mussio Central
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*Which Towel Material Dries Faster,
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Greyson Diamond

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Chesapeake Middle School,
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Logan DiMarino

Grade: 7 Team project
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Noelle Dixon

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Monroe Junior High School, Monroe
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Lahari Doppalapudi

Grade: 10 Individual project
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Luke Doseck

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Dayton Regional STEM School,
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Isabella Doss

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Ryan Doster

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Kierstin Drew

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Jack Duffey

Grade: 7 Team project
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Mitchell Dunlap

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Tejas Durgam-Chen

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Joe Dusek

Grade: 8 Individual project
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Leo Duvarney

Grade: 11 Individual project
Upper Arlington High School, Upper
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Kendall Echeman

Grade: 6 Team project
Tippecanoe Middle School, Tipp City
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Chris Eckert

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Bishop Leibold E And W Campus,
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Brionna Edwards

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Horizon Science Academy
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Ben Egan

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Adalyn Eichmiller

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Kiera Elliott

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Eli Emmert

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Daniel Ennis

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Aubrey Ernst

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Michael Esposito

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Okemdi Eze

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Rielly Fabrizio

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Leilah Faith

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Maggie Faust

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Caroline Ferguson

Grade: 10 Team project
Turpin High School, Cincinnati
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Rachel Finegan

Grade: 9 Individual project
Dayton Regional STEM School,
Kettering
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Lacie Flint

Grade: 6 Individual project
St Edward, Ashland
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Kelley Forsythe

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Benjamin Logan High School,
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Ava Foss

Grade: 7 Individual project
East Canton Middle School, E
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Caitlyn Fox

Grade: 8 Team project
New Lexington Middle School, New
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*Do Concussions Affect an Athlete's
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Paige Franklin

Grade: 9 Individual project
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Thomas Franklin

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Audrey Franks

Grade: 12 Individual project
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Thomas Franks

Grade: 7 Individual project
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Elizabeth Frantz

Grade: 8 Individual project
Wooster High School, Wooster
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Stevie Frantz

Grade: 5 Individual project
Edgewood Middle School, Wooster
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Bryan Fred Smith

Grade: 5 Individual project
McKinley Elementary School, Lisbon
Nailed IT

Fiona Freimuth

Grade: 10 Individual project
Patrick Henry High School, Hamler
Curtains Best for the Everyday Home

Lilly Freistat

Grade: 9 Individual project
Bloom-Carroll High School, Carroll
How Music Affects Test Taking

Emma Friedman

Grade: 9 Team project
Ottawa Hills High School, Ottawa
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Makensie Funk

Grade: 9 Individual project
Archbishop Alter, Kettering
Auditory Versus Visual Learning

Aiden Funkhouser

Grade: 12 Individual project
Hilltop High School, W Unity
*Caffeine's Effect on Food Digestion:
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Luca Gagliano

Grade: 12 Individual project
Athens High School, The Plains
*Comparing Mycelium Composite
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Maya Ganim

Grade: 10 Team project
Turpin High School, Cincinnati
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Arienne Garrison

Grade: 11 Individual project
Arcanum High School, Arcanum
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Noah Gathany

Grade: 11 Team project
Global Impact STEM Academy,
Springfield
*Different Water Filtration Systems
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Michael Ge

Grade: 10 Individual project
Ursuline, Youngstown
*Effect of Cold on Responsiveness of
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Maggie Gerschutz

Grade: 8 Individual project
Sacred Heart of Jesus, Wadsworth
Rebound of Composite Softball Bats

Abigail Getz

Grade: 12 Individual project
Global Impact STEM Academy,
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*Bioavailability of Probiotics in Hog
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Aidan Giffin

Grade: 8 Individual project
St Mary Central, Martins Ferry
Chickens

Nastasija Glisic

Grade: 12 Individual project
Howland High School, Warren
The Effects of Classical Music on the Short-Term Memory of Elementary-aged Children

Owen Goettel

Grade: 5 Team project
New Albany Intermediate School,
New Albany
Which Color Do Dogs Like Best?

Benjamin Goff

Grade: 6 Individual project
St Francis Xavier, Medina
Most Powerful Taekwondo Strikes Punch Vs. Elbow and Push Kick Vs. Side Kick

Charles Gooch

Grade: 6 Individual project
East Richland Christian Schools, St
Clairsville
Comparison of Time Needed for Sutures to Dissolve

Jackson Gray

Grade: 5 Individual project
Miami East Elementary, Casstown
Electricity with Fruits and Vegetables

Madison Gray

Grade: 12 Individual project
Northwestern High School, W Salem
Testing the Fermentation of Lactose Intolerant Yeast Using Lactose Products and Digesting Agents

Abby Groth

Grade: 8 Individual project
Ridgewood School, Springfield
Do Dog's or Human's Mouths Have More Bacteria?

Brynn Gutendorf

Grade: 8 Individual project
Bishop Leibold E And W Campus,
Dayton
I feel your heart beat

Calder Gutierrez

Grade: 5 Individual project
National Inventors Hall of Fame
School Center for STEM, Akron
Homopolar Motors

Jaynom Habila

Grade: 5 Individual project
National Inventors Hall of Fame
School Center for STEM, Akron
The Theoretical Possibility of Spider-Man Projectile Web Shooting

Simona Hagos

Grade: 12 Individual project
Eastland Career Center, Groveport
Aluminum-free Deodorants versus Aluminum Deodorant in S.aureus Inhibition

Suleikha Hakim

Grade: 10 Individual project
Horizon Science Academy
Columbus, Columbus
How Do Changes In Photon Emissions Affect The Growth of Axolotls?

Kara Hale

Grade: 8 Individual project
Miami East Junior High School,
Casstown
Swabbing Surfaces: Amazon Packages vs. School Chromebook Touchpads

Lauren Hall

Grade: 7 Individual project
Bishop John King Mussio Central
Junior High School, Steubenville
Can Teachers Decode Text The Way A Dyslexic Sees It?

Nathaniel Hallock

Grade: 8 Individual project
Dayton Christian School,
Miamisburg
Test Bridge Challenge

Kade Hamey

Grade: 5 Individual project
Northwestern Elementary School,
W Salem
Expand! Expand! Expand!

Xinrui Han

Grade: 11 Individual project
Athens High School, The Plains
Secondary Metabolites of Symbiotic Fungi From Monotropa uniflora Inhibit Plant Chlorophyll Synthesis

Zachary Han

Grade: 10 Individual project
Solon High School, Solon
A computational pipeline to cluster single cell Hi-C data

Juliella Hankinson

Grade: 11 Individual project
Home Schooled,
An experiment on amendments assisting in plant growth and soil health

Cora Hargrove

Grade: 12 Team project
Akron Early College High School,
Akron
Effects of European Earthworms on Tomato Plant Growth

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ROSTER OF STUDENT EXHIBITORS (CONT.)

Aaliyah Harris

Grade: 7 Individual project
Stivers School For The Arts, Dayton
The Maze Runners

Alex Harrison

Grade: 5 Team project
New Albany Intermediate School,
New Albany
*Do Certain Foods Absorb More
Bacteria Than Others?*

Sophia Harsch

Grade: 9 Individual project
Carroll, Dayton
*The Effectiveness of Mucilages as an
Adhesive*

Liam Hartley

Grade: 10 Individual project
Milton-Union High School, W Milton
Storing the Sun

Caleb Hartman

Grade: 12 Individual project
Arcanum High School, Arcanum
*Using Electrolysis to Power an
Engine*

Sophia Haughn

Grade: 12 Individual project
Bloom-Carroll High School, Carroll
*The Effects of Water Salinity on
Soybean DNA*

Nemeh Hawamdeh

Grade: 12 Individual project
Sylvania Northview High School,
Sylvania
*Effect of SZ-3 on TMAO-treated SH-
SY5Y Cell Lines*

Laurel Heetland

Grade: 9 Individual project
Lancaster High School, Lancaster
Coliform Bacteria in Water

Allison Heil

Grade: 8 Individual project
St Paul School, Westerville
*The Effect of Soil Depth on Taproot
Systems*

Kyle Heilmann

Grade: 11 Individual project
Carroll, Dayton
*A Mathematical Analysis of Velocity
and Density vs. Crater Size*

Maxwell Heis

Grade: 9 Team project
Turpin High School, Cincinnati
Effect of Time on Bacterial Growth

Anna Helber

Grade: 6 Team project
Zane Trace Middle School,
Chillicothe
Feces Fertilizer

Jian Xun Heng

Grade: 11 Individual project
Dayton Christian School,
Miamisburg
*How Temperature Affects the
Concentration of Oxalic Acid*

Everett Henry

Grade: 5 Team project
L. T. Ball Intermediate School, Tipp
City
*Evaluation of Heights with
Hydroelectricity*

Addyson Herring

Grade: 7 Team project
Monroe Junior High School, Monroe
Molecules Matter: Redox Rules

Maddie Hertrick

Grade: 6 Individual project
St Francis Xavier, Medina
*Which is more effective for
handwashing: Hot or Cold Water?*

Regan Herzog

Grade: 10 Individual project
Global Impact STEM Academy,
Springfield
*Testing if rats, when exposed to
mazes will adapt and/or get faster
processing abilities*

Jenna Heslop

Grade: 10 Individual project
Alliance High School, Alliance
*The Effects of pH on Microbial
Growth*

Ava Hickman-Beck

Grade: 8 Individual project
Bishop Flaget School, Chillicothe
*Does Background Noise Affect
Concentration?*

Francis Hirsch

Grade: 8 Individual project
Bishop Flaget School, Chillicothe
*Is Weighing or Measuring Dry
Ingredients Better for Baking?*

Max Hoffman

Grade: 11 Individual project
Upper Arlington High School, Upper
Arlington
*Analysis of Influenza Vaccination
Perceptions on the Social Media
Platform Twitter*

Claire Holcomb

Grade: 11 Individual project
Carroll, Dayton
*A Secondary Data Analysis on
Unequal Perceived Access and Use
of Green Spaces*

Lani Hollinger

Grade: 12 Team project
Arcanum High School, Arcanum
Quality Assurance

ROSTER OF STUDENT EXHIBITORS (CONT.)

Avery Horning

Grade: 10 Team project
Alliance High School, Alliance
Gorgalicious Flavors

Jack Horton

Grade: 6 Team project
Union Elementary School, W
Chester
*Large and In Charge - Building a
Solar Cell Phone Charger*

Claire Huang

Grade: 8 Individual project
Solon Middle School, Solon
*Effect of Sling Length on Trebuchet
Throwing Distance*

Sarah Hubbard

Grade: 7 Individual project
Mother Teresa Catholic, Liberty Twp
Fertilizer Frenzy!

Jadyn Huber

Grade: 12 Individual project
Anna High School, Anna
*Hand-Eye Dominance and Free
Throw Shooting*

Kate Hubner

Grade: 7 Individual project
Put-In-Bay High School, Put-In-Bay
See Ya Never, Stains!

Mackenzie Hudson

Grade: 11 Individual project
Global Impact STEM Academy,
Springfield
*Comparative Study of Brewing
Methods of Coffee and Coffee
Alternatives*

Vaishnavi Illindala

Grade: 9 Individual project
Olentangy Berlin High School,
Delaware
*Predictive Modeling and
Epidemiologic Features of
Superficial Benign Tumors in Cancer
Patients*

Samyuktha Iyer

Grade: 11 Individual project
Laurel School, Shaker Hts
*Role of CRMP2 interaction with
CDK5 in forming the neurofibrillary
tangles of Alzheimer's Disease*

Audrey Jackson

Grade: 7 Team project
Tippecanoe Middle School, Tipp City
*Just Heat It: Determining How Color
Affects the Production of Thermal
Energy Through Absorption of*

Brielle Jackson

Grade: 11 Individual project
Lincoln High School, Gahanna
*Investigation of Athletic Injury
Prevention through Mobile
Application*

Brylie Jackson

Grade: 7 Individual project
Global Impact STEM Academy,
Springfield
*Does Milk Type Have An Effect on
the Spoilage Time and Amount of
Bacteria and Mold Growth?*

Ayat Jaffar

Grade: 8 Individual project
Birchwood School of Hawken,
Cleveland
*Transparent Luminescent Solar
Concentrator Versus Conventional
Solar Panels*

Isabella James

Grade: 10 Individual project
Fairland High School, Proctorville
Understanding Lactose Intolerance

Ashton Jean

Grade: 6 Team project
Zane Trace Middle School,
Chillicothe
GermY Dryers

Maddix Jefferis

Grade: 7 Individual project
Miami East Junior High School,
Casstown
Charge You UP

Jillian Jennings

Grade: 8 Individual project
Global Impact STEM Academy,
Springfield
*What Cleaner Is Best For Surgical
Instruments In A Veterinary Clinic?*

Josie Jennings

Grade: 10 Individual project
Global Impact STEM Academy,
Springfield
*The Study of Soil Fertility Nutrient
Influence on Yield*

Alison Johnson

Grade: 8 Individual project
Liberty Union Middle School,
Baltimore
*Technology Affecting the Younger
Generations Success in School*

Alyssa Johnson

Grade: 7 Individual project
Ashland Christian, Ashland
*Does name brand flour help
cupcakes rise higher than store
brand flour?*

ROSTER OF STUDENT EXHIBITORS (CONT.)

Audrey Johnson

Grade: 7 Individual project
Mother Teresa Catholic, Liberty Twp
*Which Brand of Bubble Gum Blows
the Biggest Bubble*

Chloe Johnson

Grade: 6 Team project
Zane Trace Middle School,
Chillicothe
Soil Substitutes

Juliana Johnson

Grade: 9 Individual project
Carroll, Dayton
*The Effect of Ultraviolet Light on
Bacterial Growth*

Alina Jones

Grade: 8 Individual project
Columbia Middle School, Columbia
Station
*How Do Sports Affect Reaction
Time?*

Halle Jones

Grade: 8 Individual project
Hilltop High School, W Unity
*Does UV Light Sanitation Work
Better Than Chlorine?*

Kara Jones

Grade: 10 Individual project
Central Christian, Kidron
*Marigold petals and tomato fruit
as feed additives to improve health
attributes of quail eggs*

Layla Jones

Grade: 7 Individual project
St Francis DeSales, Newark
*Growing Bacteria With Different
Sugars*

Niko Joseph

Grade: 9 Individual project
Carroll, Dayton
*The Effect of Free Throw Technique
on Free Throw Percentage*

Aaden Judy

Grade: 8 Individual project
Hilltop High School, W Unity
*Testing Transparency, Nitrate,
Nitrite, pH, and Phosphate of Local
Water*

Carter Julian

Grade: 5 Individual project
Bell Creek Intermediate School,
Bellbrook
The Best Drinking Water

Ava Kaminski

Grade: 9 Individual project
Beaumont School, Cleveland Hts
*How Different Amounts of Baking
Soda Affect a Baked Good*

Rimel Kamran

Grade: 12 Individual project
Summit Country Day, Cincinnati
*Oncological Patient Perception
of Clinical Trials and Barriers to
Enrollment in a Community*

Iman Kanooz

Grade: 12 Individual project
Fairland High School, Proctorville
Zap that Zit

Ciarra Kascsak

Grade: 5 Individual project
John F. Kennedy Catholic Lower
School, Warren
*How does exercise affect a diabetic's
blood glucose?*

Japneet Kaur

Grade: 6 Individual project
Columbia Middle School, Columbia
Station
Polluting Particles in the Air

Emery Keirns

Grade: 7 Individual project
Global Impact STEM Academy,
Springfield
*Which Feminine Product is Most
Effective?*

Nathan Keltos

Grade: 6 Individual project
St Charles Borromeo, Kettering
Temperature and Crystals

Ethan Keyes

Grade: 7 Individual project
Global Impact STEM Academy,
Springfield
*Which Airfoil Creates the Most Lift/
Drag*

Evan King

Grade: 10 Individual project
Fairland High School, Proctorville
Natural vs. Synthetic Antibiotics

Ben Kirby

Grade: 8 Individual project
St Paul School, Westerville
*The Effect of Orange Juice and
Sports Drinks on the Amount of
Electrolytes*

Maria Kistler

Grade: 8 Individual project
St Paul School, Westerville
*The Effect of Different Hydroponic
Systems on Plant Growth*

Meredith Klein

Grade: 12 Individual project
Anna High School, Anna
Building A Better Reader

ROSTER OF STUDENT EXHIBITORS (CONT.)

Katie Klene

Grade: 9 Individual project
Incarnation, Centerville
Hear Me Hear Ye

Liam Knight

Grade: 8 Individual project
St Columban, Loveland
Septic Safe or Septic Safer?

Ashley Knox

Grade: 11 Individual project
Howland High School, Warren
The Effects of Color During Butterfly Foraging

Cameron Koenig

Grade: 6 Team project
Tippecanoe Middle School, Tipp City
Evaluation of Toothpaste Whitening on Stained Teeth

William Kohut

Grade: 11 Individual project
Lakewood High School, Hebron
Which Plastic Type is the most energy efficient when chemically recycled?

Vijith Koneru

Grade: 8 Individual project
Solon Middle School, Solon
Ferment=CO2 How Does The Amount of Sugar With Yeast Affect The Amount Of Carbon Dioxide Produced?

Ishita Kopparapu

Grade: 11 Individual project
Hathaway Brown, Shaker Hts
3D Human Stem Cell Model for Neurodevelopment

Alex Korenyi-Both

Grade: 9 Individual project
Archbishop Alter, Kettering
Light's Effect on Algae

Aashi Koshal

Grade: 6 Individual project
The Plains Intermediate School, The Plains
Is Seven Still the Magic Number?

Prem Koshal

Grade: 9 Individual project
Athens High School, The Plains
The Viability of Testing Physics Principles Involving Oscillations on the Air Track

Zoltan Kotrebai

Grade: 11 Individual project
Hawken School, Gates Mills
Organic Solar Cells & the Investigation of Non-Halogenated-Solvent-Processable Organic Photovoltaics

Mariah Kreusch

Grade: 12 Individual project
Arcanum High School, Arcanum
The Effects of pH on the Absorption of Fortified Iron

Zach Krivis

Grade: 8 Individual project
Solon Middle School, Solon
Which 3D Printing Material Is Strongest?

Kara Kucway

Grade: 12 Individual project
Sylvania Northview High School, Sylvania
Preparation of Fluorescent Carbon Dots from Biocompatible Molecules

Rhea Kumar

Grade: 7 Individual project
Birchwood School of Hawken, Cleveland
Powdered vs. Granular

Macy Ladd

Grade: 12 Individual project
Put-In-Bay High School, Put-In-Bay
Wastewater's Effect on the Dissolved Oxygen of Lake Water with Reference to the Hypoxia Threshold

Steven LaGoy

Grade: 12 Individual project
Northwestern High School, W Salem
Itinerary Sharing Application

Madalyn Lake

Grade: 10 Team project
Alliance High School, Alliance
Gorgalicious Flavors

Nina Lambert

Grade: 8 Individual project
St Thomas More, Cincinnati
Below Zero

Diego Lamboy

Grade: 9 Individual project
Dayton Regional STEM School, Kettering
Calorie Confusion: Are calorie labels reliable?

Amelia Lamont

Grade: 9 Individual project
Dayton Regional STEM School, Kettering
Fluorescence Rocks!

Benjamin Landskroener

Grade: 5 Individual project
Trinity Lutheran, Toledo
Melting Ice

Natalie Lang

Grade: 11 Individual project
Bloom-Carroll High School, Carroll
Compare the antimicrobial effects of natural foods as preservatives

ROSTER OF STUDENT EXHIBITORS (CONT.)

Reese Lang

Grade: 8 Individual project
St John, Marietta

Does Temperature affect a golf balls bounce

Ayden Large

Grade: 7 Individual project
Zane Trace Middle School,
Chillicothe

Fish Tank Filters

Owen Lawler

Grade: 11 Individual project
McNicholas, Cincinnati

Freeze Thrower

Owen Lawson

Grade: 7 Individual project
St Sebastian, Akron

How Far Can You Fly?

William Lawson

Grade: 6 Individual project
Chillicothe Intermediate School,
Chillicothe

Just Plane Crazy

Sandy Lee

Grade: 6 Individual project
Holy Angels, Sidney

What energy drink will affect plant growth the most?

Autumn Lemaster

Grade: 5 Individual project
Unioto Elementary, Chillicothe

Are Fingerprints Inherited?

Alice Lentz

Grade: 12 Individual project
Put-In-Bay High School, Put-In-Bay

The Effects of Algal Biofertilization on Hydroponically Grown Glycine max

Angela Li

Grade: 10 Individual project
Fairland High School, Proctorville

The Role of Sex Hormones on the Increase of Diet-Induced Blood Glucose and Weight Gain in Mice

Asher Liff

Grade: 6 Individual project
Fairfield Christian Academy,
Lancaster

Which Natural Preservative Works Best

Grace Linz

Grade: 7 Individual project
Ascension, Kettering

Soda's Effect on Tooth Enamel

Caroline Lipp

Grade: 7 Individual project
St Charles Borromeo, Kettering

Base Level Blood Sugar

Addison Lipply

Grade: 9 Individual project
Ellet Community Learning Center,
Akron

Molecular Gastronomy

Brooklynn Lisch

Grade: 8 Individual project
Global Impact STEM Academy,
Springfield

How Does Dry Time Affect A Macaron Shells Bite Force

May-Hay Lober

Grade: 8 Individual project
Bishop Leibold E And W Campus,
Dayton

Sensational Spheres

Brandon Lockery

Grade: 5 Individual project
Graham Elementary School,
Rosewood

Growing Sugar Crystals

Claire Loeffler

Grade: 12 Individual project
Bloom-Carroll High School, Carroll

Altering an Alkaline Electrolyzer to Enhance Hydrogen Production

Macy Long

Grade: 12 Individual project
Zane Trace High School, Chillicothe

A Human Ultrasonic Echolocation Device for Assisting the Visually Impaired

Ella Lopez

Grade: 7 Team project
Holy Trinity, Avon

Keep That Cap On!

Evelyn Lorensen

Grade: 10 Individual project
Global Impact STEM Academy,
Springfield

How Do Different Dairy Varieties Curate Outside Of Recommended Temperature

Joshua Lothrop

Grade: 6 Individual project
Worthingway Middle School,
Worthington

Written Showdown: Artificial Intelligence vs. 6th Grader. Can Teachers Tell the Difference?

Theo Lovett

Grade: 8 Individual project
St Michael Consolidated, Ripley

Frozen Meltdown

Gracelyn Lyon

Grade: 7 Team project
Zane Trace Middle School,
Chillicothe

Activator Battle

ROSTER OF STUDENT EXHIBITORS (CONT.)

Kenan Maaieh

Grade: 12 Individual project
Ottawa Hills High School, Ottawa Hills

Behavioral Effects of Depression in Reserpine-Induced Depression Zebrafish Models

Moses Mabarak

Grade: 9 Individual project
Archbishop Alter, Kettering

Fluoride Protection on Teeth

K.J. Mack

Grade: 8 Individual project
Sacred Heart of Jesus, Wadsworth

To Blink or Not to Blink

Lea MacMichael

Grade: 8 Individual project
Geneva Middle School, Geneva

Antimicrobial Activity of Bee Propolis

Esme Mahoney

Grade: 6 Individual project
Wheelersburg Middle School, Wheelersburg

Can Jumping Spiders Learn?

Braden Malone

Grade: 9 Individual project
Northeastern Middle/High School, Springfield

Taste This

Ashley Malsch

Grade: 7 Individual project
St Columban, Loveland

Loveland Water Quality

Brinley Mann

Grade: 6 Individual project
Alliance Middle School, Alliance

Shocking Vegetables

Gabriella Maranzana

Grade: 7 Team project
Bishop Flaget School, Chillicothe

Can Dogs See Color?

Kate Marhefka

Grade: 6 Individual project
St Vincent De Paul, Mt Vernon

Adhesive Strength

Lilly Markley

Grade: 5 Team project
New Albany Intermediate School, New Albany

Basketball Bounce

Allie Martin

Grade: 9 Team project
Turpin High School, Cincinnati

How Different Water Conditions Affect Phaseolus vulgaris Germination

Charlie Martin

Grade: 8 Individual project
The University School, Shaker Hts

How to Defend Against Electromagnetic Pulses (EMP)

Elise Marullo

Grade: 5 Individual project
St Mary Immaculate Conception, Wooster

Ice Melting

Sierra Matamoros

Grade: 8 Individual project
Decolores Montessori School, Greenville

Fabric softener and how it changes the flammability of fabric

Elizabeth Maxwell

Grade: 12 Individual project
Miami Valley CTC, Englewood

Does Sour Candy, Gummy Candy or Brown Rice Make The Body Perform Better During Athletic Performance?

Elizabeth Mayer

Grade: 7 Individual project
St Columban, Loveland

The Science of Softening Butter

Luke Mayhan

Grade: 8 Individual project
St Paul School, Westerville

The Effect of High Acidic Levels on the Dissolving Rate of Alka-Seltzer Tablets

Clare McCabe

Grade: 8 Individual project
Sacred Heart of Jesus, Wadsworth

The Effects of Electronic Waste on Water

Caitlin McCarthy

Grade: 9 Team project
Ottawa Hills High School, Ottawa Hills

How does body hair amounts affect bacteria levels on skin?

Dash McCoy

Grade: 6 Individual project
St Vincent De Paul, Mt Vernon

Parachute materials

Bryce McEachen

Grade: 10 Individual project
Carroll, Dayton

The Effect of Subtle Variations in White Roof Paint and Sheen on Interior Cooling

Claire McEachen

Grade: 10 Individual project
Carroll, Dayton

What is the Effect of Hand Dominance and Digit Variation on Pulse Oximetry Readings?

ROSTER OF STUDENT EXHIBITORS (CONT.)

Sammy McGill

Grade: 8 Individual project
St Mary, Lancaster
The Effect of Color and Music on Blood Pressure and Heart Rate

David McLoughlin

Grade: 11 Individual project
Carroll, Dayton
House Price Prediction Using Regression Techniques

Judah McMurray

Grade: 6 Individual project
Cincinnati Classical Academy, Cincinnati
Infinity Mirror

Riley McNeal

Grade: 8 Individual project
Global Impact STEM Academy, Springfield
Does Hand Sanitizer Kill Raw Chicken Bacteria?

Julia McNeill

Grade: 7 Individual project
Bishop Flaget School, Chillicothe
Does Spicy Food Elevate Body Temperature?

Ella McQueen

Grade: 9 Team project
Ottawa Hills High School, Ottawa Hills
How does the different types of water affect algae cellular respiration?

Emily Meckler

Grade: 12 Individual project
Mentor High School, Mentor
The Effectiveness of Various Solvents at Removing Contaminants from Forensic Glass and Plasticware

Sancty Mehola

Grade: 5 Team project
New Albany Intermediate School, New Albany
Basketball Bounce

Sadhil Mehta

Grade: 10 Individual project
Tippecanoe High School, Tipp City
A Quantitative Study of Different Metal-Air Batteries Are they the best options for our future?

Haasini Mendu

Grade: 10 Individual project
William Mason High School, Mason
GlaucoNet: A Machine Learning Approach to Glaucoma Detection

Sullivan Meneghetti

Grade: 7 Individual project
St Joseph, Avon Lake
Building a Bioplastic for the Future: An Examination into the Strength of Starch-Based Bioplastics

Izzy Mercer

Grade: 7 Individual project
Global Impact STEM Academy, Springfield
Which Fabric is Most Stain Resistant?

Alex Merryman

Grade: 11 Team project
Olentangy Liberty High School, Delaware
A Replacement for Styrene Butadiene in Tires

Kathryn Mershad

Grade: 10 Individual project
Archbishop Alter, Kettering
Measuring the production of biogas through the decomposition of different biomasses

Bree Metzler

Grade: 12 Individual project
Anna High School, Anna
Glucose Consumption and Electrolyte Absorption

Kendrick Meuer

Grade: 12 Team project
Northwestern High School, W Salem
Football Helmet Project

Alexander Mian

Grade: 12 Individual project
Ottawa Hills High School, Ottawa Hills
Detecting 35S Promoter & NOS Terminator to Identify Mislabeled GM Food Products

Emma Michael

Grade: 8 Individual project
Put-In-Bay High School, Put-In-Bay
What are the Effects of Different Shampoos and Conditioners?

Sean Michaelis

Grade: 8 Team project
St Mary, Lancaster
Telling Temperature by Touch

Nevan Miley

Grade: 8 Individual project
Decolores Montessori School, Greenville
Baby In a Box

Abram Miller

Grade: 8 Individual project
East Richland Christian Schools, St Clairsville
Effects of Improper Washing on Fire Resistant Fabric

Alexander Miller

Grade: 9 Individual project
Fairland High School, Proctorville
Multitasking

ROSTER OF STUDENT EXHIBITORS (CONT.)

Berea Miller

Grade: 6 Individual project
East Richland Christian Schools, St
Clairsville
*The Comparison of the Effectiveness
of Different Types of Mulch*

Eva Miller

Grade: 11 Individual project
Alliance High School, Alliance
*Feeding Behavior of Dark-eyed
Juncos in Relation to Temperature*

Teddy Miller

Grade: 8 Individual project
Decolores Montessori School,
Greenville
Composting

Khasim Mohamed

Grade: 12 Individual project
Horizon Science Academy
Columbus, Columbus
Estimating Pi

Laila Monaghan

Grade: 8 Individual project
Bishop Leibold E And W Campus,
Dayton
Don't Go Breaking My Heart

Elijah Moore

Grade: 7 Individual project
Trinity Lutheran, Toledo
Flotation Devices in Whirlpools

Sadie Moore

Grade: 9 Individual project
Bloom-Carroll High School, Carroll
*How Bull Sperm is Affected When It
is Stored in Different Temperatures*

Alexander Morales

Grade: 8 Individual project
Ridgewood School, Springfield
*Acidic Devastation: Effects of Acid
Rain*

Alexia Morgan

Grade: 11 Individual project
Miami Valley CTC, Englewood
*Activation of Rectus Femoris During
Various Types of Squats*

Bryn Morgan

Grade: 12 Individual project
West Geauga High School,
Chesterland
*DSLR Camera Photometry and Star
Tracking*

Sophia Morris

Grade: 8 Team project
Northwestern Middle School, W
Salem
Wacky Worms!

Hadassah Morrison

Grade: 5 Team project
L. T. Ball Intermediate School, Tipp
City
Guinea Pigs: Food Color Preference

Priya Moser

Grade: 5 Individual project
McKinley Elementary School, Lisbon
Playing With Electricity!

Calista Motisher

Grade: 8 Individual project
St Aloysius School, Bowling Green
Accentuate the Positive

Elisa Moulthrop

Grade: 10 Individual project
Beaumont School, Cleveland Hts
Baking with Vegan Ingredients

Madeline Mozlin

Grade: 6 Individual project
Cincinnati Classical Academy,
Cincinnati
*The Crystal Radio; How to Get a
Crystal Clear Signal*

Lukas Mueller

Grade: 5 Individual project
New Albany Intermediate School,
New Albany
The Beat of My Heart

Dean Mullen

Grade: 7 Team project
Kilbourne Middle School,
Worthington
*What Drink Has the Most
Electrolytes*

Evan Mullendore

Grade: 5 Individual project
New Albany Intermediate School,
New Albany
*Effects of Weight Placement on a
Pinewood Derby Car*

Addison Mullins

Grade: 10 Individual project
Wheelersburg High School,
Wheelersburg
*Water Quality and Bacteria:
Distinguishing the Good from the
Bad*

Teagan Munas

Grade: 5 Individual project
St Mary Central, Martins Ferry
*What bat is better wood or
aluminum*

Sanath Mungamuru

Grade: 7 Team project
Olentangy Shanahan Middle School,
Lewis Center
*The Effect of Magnetic Radiation on
Milk*

Mary Murphy

Grade: 7 Individual project
St Mary, Lancaster
Jiminy Crickets!

ROSTER OF STUDENT EXHIBITORS (CONT.)

Grant Muvunyi

Grade: 8 Individual project
Bishop Leibold E And W Campus,
Dayton
To Infinity and Beyond

Diya Naik

Grade: 12 Individual project
New Albany High School, New
Albany
*Analyzing Nuclear Size Trends
in Isotopes Using Proton Elastic
Scattering Data*

Krishna Naik

Grade: 9 Individual project
Lakota Central, West Chester
*Alternate clothes drying method can
reduce impact of Climate change*

Jennifer Najem

Grade: 7 Individual project
Bishop Leibold E And W Campus,
Dayton
Chromatic Adaptation

Owen Nardell

Grade: 5 Team project
New Albany Intermediate School,
New Albany
*What's the Best Golf Ball for a Youth
Golfer*

Adharsh Narendrakumar

Grade: 9 Individual project
St Ignatius High School, Cleveland
*An Automated Device that
Measures and Observes the
Capillary Refill Time of a Patient*

Caitlin Neidhard

Grade: 10 Individual project
Carroll, Dayton
*The Effects of Misleading
Information on Eyewitness
Testimony*

Jack Nelson

Grade: 8 Individual project
The University School, Shaker Hts
*How do sunglasses affect the
accuracy of eye trackers?*

Lorelai Nelson

Grade: 5 Individual project
Northwestern Elementary School,
W Salem
Effects of Freezing on Plant Life

Curtis Ngidari

Grade: 11 Individual project
Dayton Christian School,
Miamisburg
*Comparison of Water Purification
Methods*

Grace Nguyen

Grade: 11 Team project
Olentangy High School, Lewis
Center
*A Replacement for Styrene
Butadiene in Tires*

Addison Nichols

Grade: 7 Individual project
Sacred Heart of Jesus, Wadsworth
Soap and Water Vs. Hand Sanitizer

Camryn Nichols

Grade: 8 Individual project
Hilltop High School, W Unity
*Does Temperature Affect a
Football's PSI?*

Trystyn Nicolai

Grade: 9 Individual project
Northeastern Middle/High School,
Springfield
*How do germs affect the human
body?*

Audrey Nixon

Grade: 9 Team project
Ottawa Hills High School, Ottawa
Hills
*The Effect of Water Temperature on
Algal Growth*

Brooke Nolletti

Grade: 8 Team project
Northwestern Middle School, W
Salem
Wacky Worms!

Jillian Norman

Grade: 8 Individual project
Sacred Heart of Jesus, Wadsworth
*Testing the Thickness of the
Glomerulus*

Francesca Nuss

Grade: 12 Individual project
Eastland Career Center, Groveport
*Apple Cider Vinegar: An Accessible
Treatment for Bacterial Folliculitis?*

Lillian Obhof

Grade: 7 Individual project
St Francis Xavier, Medina
*Stains! Stains! Stay Away! Which
Fabric is Most Stain Resistant? Can
We Protect Our Clothes?*

Owen O'Connell

Grade: 7 Individual project
Bishop Leibold E And W Campus,
Dayton
Parachute Drop

Chloe O'Hara

Grade: 7 Individual project
All Saints, Cincinnati
Does Caffeine Affect Plant Growth



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ROSTER OF STUDENT EXHIBITORS (CONT.)

Michael O’Keeffe

Grade: 6 Individual project
St Francis Xavier, Medina
*Seeing Why We’re Different:
DNA Extraction Using Household
Materials*

Nathan Olmstead

Grade: 6 Individual project
St Charles Borromeo, Kettering
Solar Powered RC Car

Luke Oue

Grade: 6 Team project
St Charles Borromeo, Kettering
Electromagnetism

John Page

Grade: 5 Individual project
New Albany Intermediate School,
New Albany
Do Images Influence Opinions?

Paisley Paige

Grade: 5 Individual project
Unioto Elementary, Chillicothe
Breaking Bridges

Rowan Palmer

Grade: 10 Individual project
Liberty Union High School,
Baltimore
*The Effect of Birth Order on Mental
Health*

Samhita Paranthaman

Grade: 7 Individual project
Mason Middle School, Mason
*Utilizing a cost-effective tool to
Identify Harmful Algal Blooms (HAB)
in a Fresh water Ecosystem*

Shiven Parikh

Grade: 9 Individual project
Dayton Regional STEM School,
Kettering
Cracked It!

Fiona Parks

Grade: 6 Team project
Zane Trace Middle School,
Chillicothe
Power To The Mouth!

Deepthisri Paruchuri

Grade: 10 Individual project
Olentangy High School, Lewis
Center
*Multiclass Skin Lesion Classification
Using MobileNet Convolutional
Neural Networks and Diagnosis*

Divyasree Paruchuri

Grade: 9 Individual project
Olentangy High School, Lewis
Center
*Seaweed Extracts As A Potential
Plant Growth Stimulant And Yield
For Plantae*

Rhea Pasupuleti

Grade: 10 Individual project
Dayton Regional STEM School,
Kettering
*Healthy Hydroponics: The Compost
Contribution*

Keeran Patel

Grade: 8 Individual project
Incarnation, Centerville
Light Speed

Katelyn Patterson

Grade: 8 Individual project
Global Impact STEM Academy,
Springfield
*Which Cleaner Eliminates the Most
Bacteria off of a Phone Surface?*

Chevelle Payne

Grade: 7 Team project
Zane Trace Middle School,
Chillicothe
Activator Battle

Griffin Payne

Grade: 7 Team project
Kilbourne Middle School,
Worthington
*What Drink Has the Most
Electrolytes*

Allison Payton

Grade: 9 Individual project
Zane Trace High School, Chillicothe
Water Bottle Temperature

Aditya Pendse

Grade: 6 Individual project
New Albany Intermediate School,
New Albany
Thermo Magnetico

Micah Perry

Grade: 8 Individual project
Decolores Montessori School,
Greenville
Can AI Improve Mental Health?

Jack Peterson

Grade: 11 Individual project
Upper Arlington High School, Upper
Arlington
*Volatile Profile of Cotton Candy
Grapes*

Lena Pianfetti

Grade: 9 Team project
Turpin High School, Cincinnati
*How Different Water Conditions
Affect Phaseolus vulgaris
Germination*

Olivia Pickerrell

Grade: 7 Individual project
Bishop Leibold E And W Campus,
Dayton
Bright Reactions

ROSTER OF STUDENT EXHIBITORS (CONT.)

Natalie Pierson

Grade: 5 Team project
L. T. Ball Intermediate School, Tipp
City
Guinea Pigs: Food Color Preference

Rudolph (R.J.) Pilny

Grade: 8 Individual project
Sacred Heart of Jesus, Wadsworth
*What's the Best Bat: Wood or
Metal?*

Amy pinkerton

Grade: 9 Individual project
Bloom-Carroll High School, Carroll
*Air Pressure and How It Effects a
Soccer Balls Flight*

Ananya Pise

Grade: 8 Individual project
Hyatts Middle School, Powell
*Understanding the Effects of Heat
on Enzymes to Aid Health Research*

Jashwin Pisini

Grade: 7 Individual project
Olentangy Shanahan Middle School,
Lewis Center
*Stealthy Planes and How They Stay
Undetected!*

Lillian Pistole

Grade: 6 Individual project
Minford Middle School, Minford
What Makes Ice Melt Fastest?

Ethan Plageman

Grade: 7 Individual project
Bloom-Carroll Middle School, Carroll
*Space Engineering: Designing a
Hydrophilic Object that Submerges
in Water Under Conditions of
Microgravity*

Marcello Plesca

Grade: 8 Individual project
St Albert The Great, N Royalton
Covid and Benford's Law

Charlie Pochet

Grade: 9 Individual project
Dayton Regional STEM School,
Kettering
Open-FC

Luke Potts

Grade: 8 Individual project
St Albert The Great, N Royalton
Operation Clean

Finley Powell

Grade: 8 Individual project
St Paul School, Westerville
*The effect of temperature on the
absorption rate and size of clay*

Dhruv Prasanna

Grade: 6 Team project
Henry Karrer Middle School, Dublin
Aerodynamics

Matthew Preston

Grade: 12 Individual project
Bloom-Carroll High School, Carroll
*How Does B-12 Vitamin Compare to
Caffeine in Stimulatory Effectiveness*

Faith Proehl

Grade: 7 Individual project
Zane Trace Middle School,
Chillicothe
Eggtastic

Isaac Purtee

Grade: 5 Individual project
Unioto Elementary, Chillicothe
*What Common Substance Melts Ice
the Fastest?*

Lily Rader

Grade: 7 Team project
Bowling Green Christian Acdmy,
Bowling Green
Peer Pressure

Emmaline Rambler

Grade: 7 Individual project
Miller-South Visual Performing Arts,
Akron
*Do You Hear What I Hear: Testing
Pitch Perception in Students*

Will Randall

Grade: 11 Individual project
Warren High School, Vincent
A Cooler Cooler

Allison Rankin

Grade: 8 Individual project
St Paul School, Westerville
*The Effect of Types of Paper
Airplanes on the Distance the Plane
Goes and Time it Stays in the Air*

Elliot Rathburn

Grade: 5 Team project
New Albany Intermediate School,
New Albany
*Do Certain Foods Absorb More
Bacteria Than Others?*

Grace Ravasio

Grade: 7 Individual project
All Saints, Cincinnati
*Food Allergies: Oral Immuno-
Therapy vs. Avoidance*

Jessica Raymond

Grade: 7 Team project
Kilbourne Middle School,
Worthington
*How is Algae Affected by Nitrate
and Phosphate*

Aaron Rea

Grade: 6 Individual project
St Paul, Salem
Do Plants React to Music?

ROSTER OF STUDENT EXHIBITORS (CONT.)

Isaac Reash

Grade: 8 Individual project
St Paul School, Westerville
The Effect of the Salinity of Water on Grass Growth

Craig Reed

Grade: 12 Team project
Northwestern High School, W Salem
Football Helmet Project

Nathan Reynolds

Grade: 11 Individual project
Dayton Christian School,
Miamisburg
Development of Osteoarthritis in Dogs

Jacob Rice

Grade: 12 Team project
Arcanum High School, Arcanum
Quality Assurance

Sawyer Ridge

Grade: 6 Team project
Tippecanoe Middle School, Tipp City
Wash Those Hands

Elyse Ridgway

Grade: 7 Individual project
All Saints, Cincinnati
Does Age Effect Reaction Time

Kate Riegel

Grade: 10 Individual project
Archbishop Alter, Kettering
The Effect of Different Concentrations of Salty Road Runoff on Soybean Germination and Growth

Amyah Riley

Grade: 5 Individual project
Freedom Elementary School, West Chester
Bring Me a Drink!

Nicholas Ristau

Grade: 8 Team project
St Mary, Lancaster
Telling Temperature by Touch

Angela robb

Grade: 9 Individual project
Bloom-Carroll High School, Carroll
Effects of Tight Bras on Girl's Tidal Volume and Vital Capacity

Makenzie Robison

Grade: 7 Individual project
St Columban, Loveland
Ultraviolet Ultra Harmful

Stephen Roddy

Grade: 9 Individual project
Northeastern Middle/High School,
Springfield
The Possible Effects from Goats Listening to Music

Christopher Rodriguez

Grade: 9 Individual project
Bloom-Carroll High School, Carroll
Does the Amount of Cornstarch in a Material Effect the Biodegradability?

Olivia Rodriguez

Grade: 9 Individual project
Carroll, Dayton
Fading Comparison of Natural Versus Chemical Dyes

Kamryn Roe

Grade: 7 Individual project
Bishop John King Mussio Central
Junior High School, Steubenville
How Accurate are Gender Prediction Tests?

Will Rond

Grade: 7 Individual project
St Agatha, Columbus
My Heart Is Burning

Megan Rosenberg

Grade: 7 Individual project
Bishop Leibold E And W Campus,
Dayton
Light the Way

Sofie Rumman

Grade: 12 Individual project
Ottawa Hills High School, Ottawa Hills
Associations between PCS and PCL and Development of PTSD after mild traumatic brain injury after MVC

Cash Russell

Grade: 5 Individual project
Northwestern Elementary School,
W Salem
What Type of Bridge is the Strongest?

Zach Sabin

Grade: 7 Individual project
Bishop Leibold E And W Campus,
Dayton
Smooth Operation

Pranavi Sahoo

Grade: 7 Individual project
John Sells Middle School, Dublin
Let Artificial Intelligence Help you on Your Backpacking

Clare Salem

Grade: 10 Individual project
Beaumont School, Cleveland Hts
The Size of a Knowledge Base & AI Accuracy

Anthony Salerno

Grade: 7 Individual project
St Peter, N Ridgeville
The Taste of Color

ROSTER OF STUDENT EXHIBITORS (CONT.)

Aditya Varma Sangu

Grade: 8 Individual project
Olentangy Shanahan Middle School,
Lewis Center
Hydrogen power

Jared Sargent

Grade: 11 Individual project
Carroll, Dayton
*Sound Wave Reduction For Roller
Coasters*

Jayla Sartin

Grade: 9 Individual project
Northeastern Middle/High School,
Springfield
*Can Aquaponics Have The Ability
to Purify Contaminated Water and
Suitable for Sustaining life.*

Taylor Schindley

Grade: 12 Individual project
Mentor High School, Mentor
*Comparing Effectiveness of Verbal
and Visual Prompting on Verbal and
Nonverbal Students with Autism*

Liam Schnettler

Grade: 7 Individual project
St Columban, Loveland
*Preventing Mold In Carved
Pumpkins*

Ethan Schuler

Grade: 10 Individual project
Home Schooled,
3D Printed Combat Robot

Emilia Scribber

Grade: 9 Individual project
Global Impact STEM Academy,
Springfield
*How Does Sugar Content in Bananas
Differ When Ripe, Unripe, and
Overripe*

Julie Sebastian

Grade: 11 Individual project
Bethel High School, Tipp City
You Snooze, You Lose

Ali Sediqe

Grade: 11 Individual project
Ottawa Hills High School, Ottawa
Hills
*The Effects of Aeration Induced
Stress on Zebrafish Learning,
memory, Aggression, and Anxiety*

Maximilian Seifried

Grade: 6 Individual project
St Mary Immaculate Conception,
Wooster
Should Farmers Blast Mozart?

Rithvan Senthil

Grade: 6 Team project
Eversole Run Middle School, Plain
City
Aerodynamics

Phoebe Setzekorn

Grade: 7 Individual project
St Hilary, Fairlawn
*How pill bugs react to mechanical
stimuli*

Reyan Shariff

Grade: 12 Individual project
Ottawa Hills High School, Ottawa
Hills
*Quality of Life Serves as a
mediator between PTSD and Pain
Catastrophizing*

Stella Sharp

Grade: 9 Individual project
Carroll, Dayton
*The Effect of Dirt Debris Collected in
Golf Clubs on the Flight of the Ball*

Tristan Sheets

Grade: 10 Individual project
Benjamin Logan High School,
Bellefontaine
Electrolysis Efficiency

Suneha Shelke

Grade: 12 Individual project
Sylvania Northview High School,
Sylvania
*A Study of the Complex of Human
Protein IRF3 and Viral Protein (SARS-
CoV-2) ORF7a*

Madelyn Shenberger

Grade: 7 Individual project
Ashland Christian, Ashland
*Does Noise Affect Eye-Hand
Coordination?*

Dalton Shepherd

Grade: 7 Individual project
Clay High School, Portsmouth
Which drink has the most sugar?

Laney Shepherd

Grade: 7 Individual project
Clay High School, Portsmouth
Dirty Money

Gavin Sheppard

Grade: 10 Individual project
The University School - College
Prep, Chagrin Falls
*Creating A Machine Learning Model
to Predict Nick Chubb's Rushing
Yards*

Bryan Shin

Grade: 9 Individual project
Solon High School, Solon
*Rational design and testing of
blood-brain-barrier shuttle peptide*

ROSTER OF STUDENT EXHIBITORS (CONT.)

Jack Shindollar

Grade: 7 Individual project
St Mary Immaculate Conception,
Wooster
Testing Soil Erosion

Marissa Shook

Grade: 12 Individual project
Ansonia High School, Ansonia
*Reducing Bacterial Contaminants
Found on Mobile Phones*

Amaan Siddiqi

Grade: 9 Individual project
Lake Ridge Academy, N Ridgeville
*Designing a Rechargeable
Pacemaker*

Zia Siegel

Grade: 6 Individual project
Hilltop Elementary School, W Unity
*How the Presence of Worms Affect
the Growth Rate of Lettuce Plants*

Corinne Simpson

Grade: 9 Individual project
Archbishop Alter, Kettering
*The Chemistry of Flour and its
Physical Effects on Sugar Cookies*

Liam Skeans

Grade: 8 Individual project
St Charles Borromeo, Kettering
Pinhole Camera

Heather Slaby

Grade: 8 Individual project
Liberty Union Middle School,
Baltimore
Effectiveness of Fidgets

Maddie Slosar

Grade: 11 Individual project
Bloom-Carroll High School, Carroll
*Investigating the Antibacterial
Tendencies of Synthetic and Natural
Antibiotics*

Stephen Sly

Grade: 12 Team project
Jefferson Area Sr High School,
Jefferson
How Horn Angle Effects Note Clarity

Bradyn Smith

Grade: 8 Individual project
Bishop Flaget School, Chillicothe
*Does Color Have an Affect on
Reaction Time?*

Mya Smith

Grade: 12 Team project
Akron Early College High School,
Akron
*Effects of European Earthworms on
Tomato Plant Growth*

Parker Smith

Grade: 7 Team project
Zane Trace Middle School,
Chillicothe
Fish Tank Filters

Quentin Smith

Grade: 5 Individual project
Chillicothe Intermediate School,
Chillicothe
*What Makes Bones Stronger or
More Flexible?*

Carley Snider

Grade: 8 Team project
New Lexington Middle School, New
Lexington
*Do Concussions Affect an Athlete's
Memory?*

Eden Snow

Grade: 6 Individual project
Holy Angels, Sidney
*Which Kind of Softball Bat Hits a
Softball the Farthest?*

Ziyat Sodikova

Grade: 8 Individual project
St Mary, Lancaster
Fungus Coexistence

Aviraj Soin

Grade: 8 Team project
Miami Valley School, Dayton
*Design a System to Create Light
On Demand Using Self Sustaining
Biological Organisms*

Dhilen Soin

Grade: 7 Team project
Miami Valley School, Dayton
*Design a System to Create Light
On Demand Using Self Sustaining
Biological Organisms*

Lucas Soin

Grade: 9 Individual project
Archbishop Alter, Kettering
Insulation Design Challenge

Maeve Soltesz

Grade: 6 Individual project
St Raphael, Bay Village
Electric Electrolytes

Anna Spohler

Grade: 11 Team project
Global Impact STEM Academy,
Springfield
*Different Water Filtration Systems
and How Effective They Are*

Dana Stan

Grade: 10 Individual project
New Albany High School, New
Albany
*Parasitic Elements: Forging New
Connections*

Stephen Stange

Grade: 11 Individual project
Bloom-Carroll High School, Carroll
*The Effectiveness of Different Metals
on Inhibiting Bacterial Growth*

ROSTER OF STUDENT EXHIBITORS (CONT.)

Cameron Stanley

Grade: 5 Individual project
Valley Christian School, Youngstown
What is the best way to ripen a banana faster?

Graham Stecker

Grade: 7 Individual project
St Mary Central, Martins Ferry
Model Rocket Aerodynamics: Stability

Wyatt Stephens

Grade: 5 Individual project
St Mary Central, Martins Ferry
Does salinity affect the rate of evaporation?

Braydon Stine

Grade: 6 Individual project
St Mary Immaculate Conception, Wooster
Equine Nutrition

Reese Stiver

Grade: 7 Individual project
Zane Trace Middle School, Chillicothe
Music Beats

Vinny Stocco

Grade: 8 Individual project
St Paul School, Westerville
Under What Conditions Will Superworms Eat The Most Plastic?

Owen Stoddard

Grade: 6 Individual project
Cincinnati Classical Academy, Cincinnati
How Does Water Depth Effect a Tsunami's Velocity?

Mason Strahler

Grade: 5 Individual project
St John, Marietta
How does ethanol affect the runtime of a motor?

Brodie Strawser

Grade: 12 Individual project
Miami Valley CTC, Englewood
Effects of Different Length Naps on Cognitive and Athletic Performance

Ella Strimpel

Grade: 5 Individual project
Trinity Lutheran, Toledo
Ready, Set, Erode!

Dean Strong

Grade: 6 Individual project
Chillicothe Intermediate School, Chillicothe
Which Basketball Bounces the Highest?

Mackenzie Susor

Grade: 6 Individual project
Jackson Memorial Middle School, Massillon
The Effect of Sleep on Mathematics

Natasha Sutter

Grade: 7 Individual project
Chardon Middle School, Chardon
Cultivating with Compost

Claire Sutton

Grade: 5 Team project
L. T. Ball Intermediate School, Tipp City
Eruption Height of Coke and Mentos

Hans Swain

Grade: 11 Individual project
The University School - College Prep, Chagrin Falls
The Effect of Excess Dietary Iron on Intestinal Tumorigenesis

Emily Swope

Grade: 12 Individual project
Bloom-Carroll High School, Carroll
The Effect of Lactic Acid Bacteria on the Growth of Soybean Plants

Daniel Szczepanski

Grade: 7 Individual project
St Columban, Loveland
Insulation: Which One is Best

Joshua Szolosi

Grade: 7 Individual project
Athens Middle School, Athens
The Mobile Game Experience

Afhan Taha

Grade: 11 Individual project
Mentor High School, Mentor
Hyperthermic Chemotherapy Effects on CD8+ T Cell Populations in Ovarian Cancer Bearing Murine Models

Zehra Nazli Tali

Grade: 7 Individual project
Mason Middle School, Mason
Testing the Strength of Paper

Arya Tangirala

Grade: 7 Team project
Olentangy Shanahan Middle School, Lewis Center
The Effect of Magnetic Radiation on Milk

Elizabeth Theobald

Grade: 11 Individual project
Archbold High School, Archbold
Trihalomethane Occurrence and Formation within Water Distribution Systems Impacting Public Schools

Chaz Thomas

Grade: 8 Individual project
New Lexington Middle School, New Lexington
Can My Robotic Arm Lift 1 Pound?



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ROSTER OF STUDENT EXHIBITORS (CONT.)

Paul Thomas

Grade: 7 Individual project
Our Lady Of Perpetual Help, Grove City
What are the Effects of Different pH Levels on the Structural Stability of Wood?

Carter Thomes

Grade: 5 Team project
New Albany Intermediate School, New Albany
Which Color Do Dogs Like Best?

Arisa Thompson

Grade: 7 Individual project
John C Dempsey Middle School, Delaware
Kaboom! What Was That Sound? A Meteor!

Hannah Thompson

Grade: 7 Individual project
Mother Teresa Catholic, Liberty Twp
Flour Power

William Thompson

Grade: 7 Individual project
Bishop Flaget School, Chillicothe
What Effect Does Temperature Have on Battery Lifespan?

Darelle Thornton

Grade: 11 Individual project
Firestone Community Learning Center, Akron
Novel Radical Copolymerization of CO₂: Addressing Polymerization Challenges and Climate

Tess Thornton

Grade: 7 Team project
Kilbourne Middle School, Worthington
How is Algae Affected by Nitrate and Phosphate

Victoria Thumm

Grade: 5 Individual project
John F. Kennedy Catholic Lower School, Warren
Testing Organic Lawn Fertilizers

Emily Timmerman

Grade: 9 Team project
Ottawa Hills High School, Ottawa Hills
The Effect of Water Temperature on Algal Growth

Neil Tivakaran

Grade: 11 Individual project
Carroll, Dayton
Effect of Organic Enzymes on Gluten Degradation using ELISA Testing

Aria Tomb

Grade: 5 Team project
L. T. Ball Intermediate School, Tipp City
Eruption Height of Coke and Mentos

Ian Truebenbach

Grade: 6 Individual project
Miami View Elementary, S Charleston
How much protein is available to pigs after digestion?

Marley Turner

Grade: 7 Individual project
Bishop Leibold E And W Campus, Dayton
Sticky Science Situation

Kelsey Ulery

Grade: 5 Individual project
Valley Christian School, Youngstown
What Is The Effect Of Different Colored Lights On Plant Growth

Ela Van Oss

Grade: 7 Team project
Tippecanoe Middle School, Tipp City
Just Heat It: Determining How Color Affects the Production of Thermal Energy Through Absorption of Light

Dylan Vance

Grade: 10 Individual project
Benjamin Logan High School, Bellefontaine
The Presence of Microplastics Within Indian Lake, Logan County

Nivriti Varghese

Grade: 11 Individual project
Sylvania Northview High School, Sylvania
Harnessing associative phase separation for the facile sensing of food freshness

Sydney Vermilion

Grade: 9 Individual project
Upper Arlington High School, Upper Arlington
Effects of Micro-plastics on the Growth of Soybeans

Autumn Vick

Grade: 6 Team project
Zane Trace Middle School, Chillicothe
Feces Fertilizer

Wyatt Vick

Grade: 11 Team project
Zane Trace High School, Chillicothe
The Investigation of Effects of Various Preservatives on Color in Fresh Pork

Madison Vineyard

Grade: 8 Individual project
Immaculate Heart Of Mary, Cuyahoga Falls
What Age Group Has The Dirtiest Hands?

ROSTER OF STUDENT EXHIBITORS (CONT.)

Dawson Vocke

Grade: 5 Team project
L. T. Ball Intermediate School, Tipp
City
*Evaluation of Heights with
Hydroelectricity*

Giada Vqqalentine

Grade: 8 Individual project
St Paul School, Westerville
*The Effect of a Growing Medium on
Plant Root Growth*

Lily Wagner

Grade: 7 Individual project
St Aloysius School, Bowling Green
Stressed Out?

Jacob Wakefield

Grade: 12 Team project
Northwestern High School, W Salem
Redesigning The Lyre and Flip-Folder

Noah Wallace

Grade: 5 Individual project
Unioto Elementary, Chillicothe
Amazing Planes

Paige Walter

Grade: 12 Individual project
Northwestern High School, W Salem
*Effect of Algae-Based Bioreactor on
Carbon Presence in the Atmosphere*

Nathan Wang

Grade: 11 Individual project
Seven Hills School, Cincinnati
*Toxicity of per- and polyfluorinated
alkyl substances (forever chemicals)
in the annelid Lumbriculus*

Weining Wang

Grade: 11 Individual project
The University School - College
Prep, Chagrin Falls
*Investigating hydrogen production
enzyme using gaming GPUs*

Mrunmayi Warade

Grade: 11 Individual project
Solon High School, Solon
*A novel approach to modify
Vancomycin to treat antibiotic
resistance*

Elison Ward

Grade: 7 Team project
Bishop Flaget School, Chillicothe
*Which Shampoo Protects Colored
Hair the Best?*

Logan Ward

Grade: 9 Individual project
Global Impact STEM Academy,
Springfield
*How do different welds change the
strength of the bond?*

Keita Watson

Grade: 11 Individual project
Upper Arlington High School, Upper
Arlington
*Oral bacterial control: antimicrobial
properties of herbal and peptidic
antioxidants*

Leah Wawszkiewicz

Grade: 7 Individual project
Holy Trinity, Avon
*Northeast Ohio River Pollution
Levels: Source vs. Mouth*

Hayden Weaver

Grade: 5 Individual project
East Richland Christian Schools, St
Clairsville
*Strength of different brands of trash
bags*

Gracie Weber

Grade: 5 Individual project
Fairfield Christian Academy,
Lancaster
*Does Time Matter? Testing the 5
Second Rule*

Hunter Weber

Grade: 11 Team project
Jefferson Area Sr High School,
Jefferson
How Horn Angle Effects Note Clarity

Abby Webster

Grade: 11 Individual project
Global Impact STEM Academy,
Springfield
*Do People With Different
Backgrounds Have The Same
Understanding of Agricultural Laws?*

Kenley Weikart

Grade: 5 Individual project
McKinley Elementary School, Lisbon
*Heat It: How Does Color Affect
Heating by Absorption of Light?*

Frances Weinberg

Grade: 9 Individual project
Beaumont School, Cleveland Hts
*Testing How Different Preparation
Methods Affect Vitamin C Level in
Bell Peppers*

Carolyn Weis

Grade: 7 Individual project
Buckeye Valley Local Middle School,
Delaware
Which Battery is Best?

Rex Werner

Grade: 6 Individual project
Terrace Park Elementary School,
Terrace Park
Foods Electricity

Delia Wetherell

Grade: 7 Individual project
Bishop John King Mussio Central
Junior High School, Steubenville
What Melts Ice the Fastest?

ROSTER OF STUDENT EXHIBITORS (CONT.)

Maggie Wheeler

Grade: 11 Individual project
Hilltop High School, W Unity
The Strength of Threads and Stitch Types on Cotton Fabric

Easton White

Grade: 5 Individual project
Unioto Elementary, Chillicothe
The Relationship between Air and Water Quality

Grace Whitmore

Grade: 11 Individual project
Global Impact STEM Academy, Springfield
The Effect of Non-Native and Native Milkweed Species on Monarch Butterfly Chrysalis Development

Robert Whittington

Grade: 9 Individual project
Zane Trace High School, Chillicothe
Fungi Magi

Clara Wiant

Grade: 9 Individual project
Northeastern Middle/High School, Springfield
The Color of Baking

Evelyn Wiget

Grade: 6 Team project
Zane Trace Middle School, Chillicothe
Germ Dryers

Braylon Wilcox

Grade: 5 Individual project
Charles Huber Elementary School, Huber Hts
Football Weather Temperatures!

Kendall Wild

Grade: 7 Individual project
Bloom-Carroll Middle School, Carroll
Stain Away II

Leo Wingert

Grade: 5 Team project
Independence Elementary School, Liberty Twp
Gas: Silent but Deadly, The Creation of CO₂

Leah Wiseman

Grade: 6 Team project
Zane Trace Middle School, Chillicothe
Power To The Mouth!

Michelle Witschey

Grade: 8 Individual project
Sacred Heart of Jesus, Wadsworth
How Does Temperature Affect the EV of Luminol

Avalon Woconish

Grade: 10 Individual project
Beaumont School, Cleveland Hts
Invasive Invasion: A Study on Lawn Fertilizer and Invasive Species in Horseshoe Lake Park

Cyerra Wollett

Grade: 8 Team project
Alexander Jr. / Sr. High School, Albany
Ankle foot orthosis

Amelia Wong

Grade: 12 Individual project
Mentor High School, Mentor
Examining the Effects of Social Factors and Treatment Options on the Wellbeing of those with SMA

Aviva Wood

Grade: 9 Individual project
Athens High School, The Plains
Using Natural Indicators to Create a Prototype of a Cost-Effective Smart Bandage

Meghan Worpenberg

Grade: 8 Individual project
St Columban, Loveland
Does the Amount of Time that You Cure Concrete Make it Stronger?

Joseph Wright

Grade: 11 Team project
Dayton Regional STEM School, Kettering
Charge Up with Your Downspout: Perfecting a Hybrid Hydroelectric System

Joshua Wright

Grade: 7 Individual project
Bishop Leibold E And W Campus, Dayton
Amazing Anti-Magnets

Karis Wright

Grade: 11 Team project
Arcanum High School, Arcanum
What detergent is to DYE for

Teddy Wright

Grade: 7 Individual project
St Mary Immaculate Conception, Wooster
Is a Corked Bat Better?

Lucas Yang

Grade: 8 Individual project
Global Impact STEM Academy, Springfield
Can Plants Purify Water

Addison Young

Grade: 7 Individual project
Ashland Christian, Ashland
Does eye color affect low light vision?

ROSTER OF STUDENT EXHIBITORS (CONT.)

Ryan Zand

Grade: 7 Individual project
New Albany Middle School, New Albany
Impacts of High Salinity on Plant Water Absorption

Catherine Zbinden

Grade: 9 Individual project
Wayne High School, Huber Hts
The impact of pH on the spherification of food

Gordon Zeitz

Grade: 11 Individual project
The University School - College Prep, Chagrin Falls
Improving the Efficiency of Small-Scale Hydroelectric Power by Modifying the Turbine Shape

Jiaxin Zhou

Grade: 12 Individual project
Howland High School, Warren
The Effect of Air Circulator on Indoor Air Quality

Sophie Zhuang

Grade: 11 Individual project
Dublin Jerome High School, Dublin
Identification of Biomarkers for Cartilage Damage in Osteoarthritis by RNA-seq & Proteomic Analysis

Charles Zierolf

Grade: 8 Individual project
St Columban, Loveland
Can A nerf dart stop an asteroid

Ishani Zimmerman

Grade: 12 Individual project
Mentor High School, Mentor
Improving the Electrical Output of Solar Cells using Peltier Coolers and Heat Sinks

Alex Zimnes

Grade: 7 Individual project
Our Lady Of Perpetual Help, Grove City
Battle of the Cups

Jo Zulia-Davis

Grade: 6 Individual project
The Plains Intermediate School, The Plains
Impact of Sound on Kids' Attention

Congratulations Student Exhibitors!



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Governor's Thomas Edison Awards for Excellence in STEM Education

About the Governor's Awards

First established in 1985, under Gov. Celeste's Administration, The Governor's Thomas Edison Awards for Excellence in Student Research and STEM Education are presented to Ohio students, schools, and teachers who extend STEM education beyond traditional classroom activities. Award certificates are presented to each school and a press release recognizes each of the school's STEM teachers for this high achievement.

School and Teacher Awards

The Governor's Thomas Edison Excellence of STEM Education recognizes teachers and schools that focus on STEM education and provide additional opportunities for youth science beyond the classroom.

Criteria for School and Teacher Awards

1. Conduct a local science fair with 12 or more students and have two or more of these students participate at the 2023 District Science Day -OR- have 6 or more students participate at the 2023 District Science Day.

2. Students must participate in at least one more youth science opportunity beyond the classroom: State Science Day, Believe in Ohio, Regional Science and Engineering Fairs, Regeneration Science Talent Search, Regeneration International Science & Engineering Fair, MATHCOUNTS, JSHS, B-WISER Camp, Engineer-for-a-Day Program, TSA:TEAMS, OM, Physics Olympics, Science Olympiad, Invention League, or other structured, STEM-related youth activities at museums and nature centers, extensive field experiences, and mentorships at colleges and industries.

3. Documentation: The principal must write and personally sign a cover letter on school letterhead that lists the teacher or members of the teaching team most responsible for participation in the student activities.

The cover letter from the principal, a two-page summary and DOCUMENTATION should not exceed 20 pages. Complete application packages must be uploaded in PDF format by July 20, 2023.

- Provide a maximum two-page summary description with attached documentation as to how and to what extent the school's program(s) meet(s) the Academy's definition of STEM education. The summary needs to present a compelling case for your application. See [What is STEM Education?](#)

- Include a table or matrix that identifies and affirms the specific roles or contributions of each teacher nominated.

- Due to the page limitation, it is not necessary to include copies of certificates earned by students. Instead, use this space to summarize what students have accomplished, show examples of how the school provides continuity between grades and schools, discuss the number of students your programs reach, how your programs meet the curriculum standards, etc. You are encouraged to provide links to news stories that reviewers could also view.

The entire application should not exceed 20 pages. Each submission must include (1) a cover letter (2) two-page summary, (3) documentation. Complete application packages must be uploaded in a single PDF format by July 20, 2023.

<https://form.jotform.com/OhioScience/edison-award>

For complete information on these awards visit:

<https://www.ohiosci.org/scholarship-opportunities/department-of-development/>



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