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**Copyediting and design—Philip Winchell,**  
**STEM Education Support Services**

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Now in its 72nd year and with more than 60,000 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 25,000 students at 1,000+ local school science fairs, 797 students in grades 5–12 from 258 schools will be evaluated on their scientific research and communication skills. They will compete for nearly 100 different scholarships and awards valued at nearly $500,000. Individuals will be recognized and several sponsors will also present awards to members of team research projects.

First held in 1949, the 72nd Annual State Science Day is sponsored by: The Ohio Academy of Science, The American Electric Power Foundation, Battelle Memorial Institute, CAS, Charles River Laboratories, Kokosing, Ohio EPA–The Ohio Environmental Education Fund, Ohio Tuition Trust Authority–College Advantage, and The Ohio State University.

ohiosci.org/ssd/

CONGRATULATIONS TO ALL EXHIBITORS

Exhibitors were chosen first by their schools and then by their Jr. Academy Council districts as having superior projects in their respective geographic areas. 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 $500,000 in sponsored awards and scholarships, we seek to honor all exhibitors for their hard work. Please accept our sincere congratulations on your outstanding work and our encouragement to continue your interest in scientific research. Thank you for participating in this year’s State Science Day.

MICHAEL E. WOYTEK, Executive Director

FUTURE SSD DATES

To Be Announced
AMERICAN ELECTRIC POWER FOUNDATION
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. l aep.com

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. l battelle.org

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

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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 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. l criver.com

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. l epa.ohio.gov/oee

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. l collegeadvantage.com

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For 150 years, The Ohio State University has been the stage for academic achievement and a laboratory for innovation. The Office of Distance Education and eLearning plays a role in advancing that mission by providing students, faculty, staff, and others an enriched experience through a technology-ready campus, innovations in teaching and learning, and professional development opportunities. l osu.edu
Future Scientists Start at Columbus State

- Future Scientists of Ohio Scholars Program offers full tuition scholarships for qualified students
- STEM Club provides guest speakers and field trips to explore STEM careers
- Small class sizes and dedicated faculty help students master STEM concepts
- Preferred Pathway partners provide guaranteed acceptance and credit transfer toward a bachelor’s degree

cssc.edu/STEM
Welcome and Council Districts

By Mr. Rodney Sheets, President, The Ohio Academy of Science

Welcome to State Science Day!

As everyone knows, the world has undergone a unique transformation in the last few months. Thanks to the hard work of a dedicated group of staff and members of the Junior Academy Council, the Ohio Academy of Science has also transformed State Science Day in order to protect the health and safety of thousands of students, educators, parents, judges and sponsors.

Science, technology, engineering and mathematics has brought us many great advancements, and thankfully, we are a society of critical thinkers who can use STEM to adapt to a changing world. I welcome your contributions to that society and hope that the events over the past few months only heightens your passion and enthusiasm for STEM to solve the world’s problems.

I want to welcome you and thank you for being a part of this unique event. As we may experience technological issues with an event that has transformed so completely, please be patient with us, as we will be with you. Through it all, let’s not forget we are coming together to learn....and celebrate how science and technology can transform our world into a better place.

Rodney A. Sheets

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We support the development of the next generation of scientists and health practitioners.

The Research Institute’s Trainee Association (RITA) is proud to sponsor the 4th Annual RITA Biomedical Research Award for high school students studying biomedical science or biobehavioral health.

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CONGRATULATIONS TO OUR 2020 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
Aurora Fares, 11
Rohit Kataria, 12
Cassidy Smith, 12

6-year Awardees
Sudarshan Chakravarthy, 12
Willow Kenneda, 12
Emily Kruse, 11
Alaina Metzler, 11
Rayanne Mustapha, 10
Sundus Mustapha, 12
Rena Ouyang, 11
Mohini Parvate, 11
Shruthi Ravichandran, 11
Elyse Reed, 11
Lisa Sebastian, 11
Tim Stoffer, 10
Zoe Williams, 12

5-year Awardees
Noor Abukaram, 11
Synene Maria Abukaram, 12
Emma Conners, 11
Dasha Crocker, 11
Serena Kataria, 10
Alaina Reed, 11
Lohith Savardekar, 11
Michael Scheeser, 11

4-year Awardees
Laalithya Acharya, 11
Kevin Agnew, 11
Ainsley Beckler, 8
Adeline Butler, 8
Charley Clyne, 8
Nicholas Cribbet, 8
Caroline Denny, 10
Cassie Eckert, 11
Dawson Forbush, 9
Samantha Geiger, 8
Carsyn Hagans, 10
Alina Handte, 10
Adam Khan, 8
Grace Kruse, 9

4-year (cont.)
Umayna Magsi, 9
Jake McCarthy, 10
Anas Mereb, 8
Sanchita Paranthaman, 11
Emily Plageman, 9
Arvind Prasad, 11
Julie Sebastian, 8
John Shin, 9
Emily Swope, 9
Adriane Thompson, 12
Mihir Vador, 10
Wyatt Vick, 8
Viviana Wheeler, 10
Ash Williams, 11

2019 STATE SCIENCE DAY 7-YEAR AWARDEE

The 2019 SSD 7-Year Awardee, Mr. Joseph Kruse (Bloom Carroll HS), center. Brutus Buckeye (left); Michael E. Woytek, OAS Executive Director (right).
2019 STATE SCIENCE DAY AWARDS

2019 DR. LYNN E. ELFNER YOUNG SCIENTIST Awardees

The 2019 Dr. Lynn E. Elfner Young Scientist awardees selected for outstanding projects in grades 5 to 8.

THE 2019 GOVERNOR’S THOMAS EDISON AWARDS FOR EXCELLENCE

Academy of St Bartholomew, Cleveland
Anderson High School, Cincinnati
Archbishop Alter High School, Kettering
Archbishop McNicholas High School, Cincinnati
Ashland Christian School, Ashland
Beaumont School, Cleveland Heights
Bellbrook Middle School, Bellbrook
Big Walnut Intermediate School, Sunbury
Bishop Flaget School, Chillicothe
Bishop John King Mussio Central JHS, Steubenville
Bishop Leibold East & West Campus, Dayton
Carroll High School, Dayton
Dayton Christian School, Miamisburg
East Community Learning Center, Akron
East Richland Christian Schools, St. Clairsville
Fairfield Christian Academy, Lancaster
Firestone Community Learning Center, Akron
Geneva High School, Geneva
Holy Angels Catholic School, Sidney
Holy Trinity School, Avon
Incarnate Word Academy, Parma Heights
Kibbourne Middle School, Worthington
LT Ball Intermediate School, Tipp City
Lehman Catholic High School, Sidney
Miller South School for the Visual & Performing Arts, Akron
Mother Teresa Catholic Elementary School, Liberty Twp.
National Inventors Hall of Fame STEM MS, Akron
National Inventors Hall of Fame STEM HS, Akron
Oakstone Academy, Westerville
Ottawa Hills Junior/Senior High School, Ottawa Hills
River Valley High School, Bidwell
Saint Albert The Great, North Royalton
Saint Ambrose Catholic School, Brunswick
St Anselm School, Chesterland
St Francis Of Assisi School, Gates Mills
St Francis Xavier Catholic School, Medina
St Jude School, Elyria
Saint Mary School, Lancaster
St Mary School, Chardon
St Mary School, Wooster
Saint Paschal Baylon School, Highland Heights
St Paul School, Salem
St Peter Catholic School, North Ridgeville
Saint Raphael School, Bay Village
St Rita Catholic School, Solon
Saint Sebastian Parish School, Akron
Sts Joseph & John School, Strongsville
Thomas Worthington High School, Worthington
Tippecanoe Middle School, Tipp City
Turpin High School, Cincinnati
Unioto Elementary School, Chillicothe
Warsaw Elementary School, Warsaw
West Geauga High School, Chesterland
Wilson Hill Elementary, Worthington
2019 HAROLD C. SHAW MEMORIAL OUTSTANDING SCHOOL AWARD

All Saints School, Cincinnati, receives a 2019 Harold C. Shaw 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.

2019 Harold C. Shaw Awardees

All Saints School – Cincinnati
Bethel Junior High School – Tipp City
Harding Middle School – Steubenville
John Sells Middle School – Dublin
LT Ball Intermediate School – Tipp City
Ottawa Hills Junior/Senior High School – Ottawa Hills

Our Lady of Perpetual Help Catholic School – Grove City
St Columban School – Loveland
St. Paul School – North Canton
St. Rose Catholic School – New Lexington
Terrace Park Elementary School – Terrace Park
Walnut Hills High School – Cincinnati
THE OHIO TUITION TRUST AUTHORITY

2019 COLLEGE ADVANTAGE 529 PLAN AWARD

Ms. Leah Hohenbrink — Big Walnut Intermediate School, Sunbury
Mr. Andrew Beck — St Paul School, Salem
Ms. Addie Gurgiolo — Emerson Elementary School, Westerville
Ms. Kara Elizabeth Jones — St Mary School, Wooster
Mr. Adam Kauh — Walnut Springs Middle School, Westerville
Ms. Autumn King — St Edward School, Ashland
Ms. Kendall Sleight Leff — Big Walnut Intermediate School, Sunbury
Ms. Eryn Gail McLain — Blessed Sacrament School, Newark
Ms. Evelyn Mae Metze — Terrace Park Elementary School, Terrace Park
Ms. Dana Ioana Stan — New Albany Intermediate School, New Albany
Ms. Danica Stoffer — East Richland Christian Schools, St. Clairsville
Mr. Robert Whittington — Zane Trace Middle School, Chillicothe

THE 2019 GOVERNOR’S THOMAS EDISON AWARDS

For Excellence in Biotechnology & Biomedical Technologies
Ms. Olivia Hoskins — Liberty Union Middle School
Ms. Shifra R. Narasimhan — Athens High School
Ms. Devi Dheekshita Nelakurti — Olentangy High School
Mr. Kunal Ponkshe — William Mason High School
Ms. Shruthi Ravichandran — Hathaway Brown School

For Excellence in Information Science & Technology Research
Ms. Willow Kenneda — Williamsburg High School
Mr. Landon Jo Muhlenkamp — Greenville Senior HS
Mr. Charles Pafford — Incarnate Word Academy
Ms. Elyse Reed — Ashland High School
Mr. Mihir Vador — Dublin Jerome High School

For Advanced or Alternative Energy
Ms. Grace Elhindi — Beaumont School
Ms. Claire Elizabeth Loeffler — Bloom Carroll MS
Ms. Apurva Makote — Dayton Regional STEM School
Mr. Anas Mereb — Sunrise Academy
Ms. Alison Jie Zhong — Strongsville High School

For Advanced Materials
Mr. Edward Dan — Solon High School
Ms. Alexa Fischer — Village Academy
Mr. Zachary David Merz — Carroll High School
Mr. Charles Pafford — Incarnate Word Academy
Ms. Jing-Jing Shen — Beachwood High School

Ms. Leah Hohenbrink (center), a 5th grade student from Big Walnut Intermediate School (Sunbury) received a $1,500 College Advantage 529 Award. Presenting the award were Michael Woytek (left), Executive Director of The Ohio Academy of Science and Tim Gorrell (right), Executive Director of The Ohio Tuition Trust Authority.
SCHOLARSHIPS AND SPONSORED AWARDS

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

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

American Society of Highway Engineers Award - 053
American Society of Highway Engineers, Central Ohio Section

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

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

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

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

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

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

Broadcom MASTERS - 250
Society for Science & The Public

Case Engineering and Applied Science Award - 192
Case Western Reserve University

Cleveland Museum of Natural History's Outstanding Naturalist Award - 136
The Cleveland Museum of Natural History

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

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

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

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

Engineering Achievement Award - 059
Engineers Foundation of Ohio

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

EWI Award - 058
EWI

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

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

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

Geological Award - 079
Ohio Geological Society

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

Governor's Thomas Edison Award for Advanced Materials - 106
Ohio Development Services Agency

Governor's Thomas Edison Award for Advanced or Alternative Energy Scholarship - 217
Ohio Development Services Agency

Governor's Thomas Edison Award for Excellence in Biotechnology & Biomedical Technologies - 033
Ohio Development Services Agency

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

Interdisciplinary Research Award - 133
Sigma Xi, Ohio State Chapter

JLG Excellence in Engineering Award - 259
JLG

Milt Austin Aquatic Science Award - 030
Ohio Chapter of The American Fisheries Society

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

Ohio Environmental Health Association Award - 087
Ohio Environmental Health Association

Ohio Northern University State Science Day Scholarship - 244
Ohio Northern University

Ohio Oil and Gas Energy Education Program Award - 139
Ohio Oil and Gas Energy Education Program Award

Ohio Soybean Bioscience Award - 018
The Ohio Soybean Council Foundation

Ohio Soybean Bioscience Team Award - 230
The Ohio Soybean Council Foundation

Osmon Ramsey Environmental & Natural Science Award - 258
The Ohio Academy of Science

Osteopathic Medical Award - 145
Ohio Osteopathic Association

OTTA $1,000 Scholarship - 239
Ohio Tuition Trust Authority

OTTA $1,500 Scholarship - 240
Ohio Tuition Trust Authority

Outstanding Civil/Environmental Engineering Award - 251
The Mannik & Smith Group, Inc.

Outstanding Physics Project Award - 067
The American Physics Society - OH Region Section & Southern Ohio Section of the American Assoc. of Physics Teachers

Outstanding Project in Plant Pathology - 182
The Ohio State University Department of Plant Pathology

Peter G. Finke Water Management Award - 091
Water Management Association of Ohio
SCHOLARSHIPS AND SPONSORED AWARDS

Plant Pathology Scholarship at The Ohio State University - 157
The Ohio State University Department of Plant Pathology

Science of Food - 169
The Ohio State University Department of Food Science & Technology

Society of Experimental Test Pilot Excellence in Flight Sciences - 247
The Society of Experimental Test Pilots (SETP)

Society of Petroleum Engineers Award - 108
Society of Petroleum Engineers, Ohio Section

Soil and Water Conservation Award - 090
Ohio Federation of Soil and Water Conservation Districts

Statistical Analysis Award - 023
American Statistical Association, Columbus Chapter

Stone Laboratory Scholarship - 019
The Friends of Stone Laboratory, The Ohio State University

The Lemelson Early Inventor Prize - 254
The Lemelson Foundation via Society for Science & the Public

The Ohio State University College of Engineering Scholarship - 218
The Ohio State University College of Engineering

University of Akron Scholarship - 011
University of Akron

University of Mount Union State Science Day Scholarship - 205
University of Mount Union

University of Toledo Science Achievement Scholarship - 012
University of Toledo

Veterinary Medicine Award - 050
Ohio Veterinary Medical Association Auxiliary

Wasmer, Schroeder & Company Award - 245
Wasmer, Schroeder & Company Award

Thank You Award Sponsors and Judges!

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

011 - University of Akron Scholarship
Dr. Ali Dhinojwala, Akron

012 - University of Toledo Science Achievement Scholarship
Dr. Mark Camp, Toledo

018 - Ohio Soybean Bioscience Award
Mr. Dustin Homan
Mrs. Jeanne Gogolski, Columbus

019 - Stone Laboratory Scholarship
Mrs. Diane Gabriel, Circleville
Dr. Thomas Hall, Newark
Ms. Erin Monaco, Columbus
Mrs. Michelle Pennington, Thornville
Dr. Jeffrey Reutter, Westerville
Ms. Beth Wallace, Columbus

023 - Statistical Analysis Award
Ms. Tong Chen, Columbus
Mr. Gavin Collins
Ms. Anna Seffernick, Columbus
Dr. Asuman Turkmen, Newark
Mr. Xiao Zang

028 - Behavioral Science Award
Dr. Jim Broyles, Westerville
Mr. Jonathan Cleveland, Dayton
Mr. Mathew Drake, Galloway
Dr. Sima Finy, Newport
Dr. Katharine Hahn Oh, Shaker Heights
Dr. Heidi Kloos, Cincinnati
Dr. Mary Lewis, Dublin
Ms. Ashley Lockemer, Dayton
Dr. John Lodge, Beaver Creek
Dr. Kelly Martincin, Brunswick
Ms. Jessica McCarthy, Beaver Creek
Dr. Erich Merkle, Akron
Mr. Miguel Nunez
Dr. Keelan Quinn, Painesville
Mr. Michael Ranney, Columbus
Ms. Rachel Schafer, Cincinnati
Dr. Paula Shear, Cincinnati
Ms. Lexi Smith
Dr. Brittany Sommers, Cleveland
Ms. Claire Speelman, Grove City
Dr. Cynthia Van Keuren, Avon Lake

030 - Milt Austin Aquatic Science Award
Mr. Eugene Braig, Delaware
Mr. Bryan Kinter, Findlay

031 - Food Science and Engineering Award
Dr. Rachel Liggett, Marysville

033 - Governor's Thomas Edison Award for Excellence in Biotechnology & Biomedical Technologies
Mr. Don Caudy, Sunbury
Mr. John Lewis, Columbus
Dr. Wayne Poll, New Albany

050 - Veterinary Medicine Award
DVM. Allison Pawlikowski, Columbus

058 - EWI Award
Mr. Stan Bovid, Dublin
Mr. Devin Hilty, Westerville
Mr. William Mohr, Columbus
Ms. Katherine Namola, Columbus
Mr. Tim Palosari, Columbus
Mr. Gary Walzer, Dublin

059 - Engineering Achievement Award
Mr. James Arnold, Powell

061 - Excellence Award for Civil Engineering Projects
Mr. Peter Naravage,

067 - Outstanding Physics Project Award
Mr. Dan Banks
Dr. Jennifer Blue, Oxford
Dr. Gregory Braun, Cincinnati
Dr. Beatriz Burrola Gablondo, Dr. Sandra Doty, Granville
Mr. Douglas Forrest, Reynoldsburg
Dr. Elizabeth George, Springfield
Dr. Kathy Harper, Columbus
Dr. Lenore Horner, Reading
Ms. Shan Huang, Beaver Creek
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Dr. Jessie Sun, Shaker Heights
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Ms. Mary Wildermuth, Columbus
Ms. Tara Wilson, Dublin
Mr. Alexander Wilson, Dublin
Dr. Michael Ziegler, Carroll

070 - Dick Goddard Honorary Young Atmospheric Scientist Award
Mr. Eric Wertz, Kent

072 - American Water Works Association Award
Mr. Randall Berkley, Columbus
Ms. Pooja Chari
Mr. Erik Fulton, Columbus
Ms. Juliana Laszakovits, Columbus
Mrs. Taylor Lawson, Bowling Green
Ms. Megan Patterson
Ms. Megan Shortridge, Bellbrook
Mr. Danny Yodzis, Columbus

079 - Geological Award
Dr. Mohammad Fakhrari, Columbus
Ms. Amy Lang, Columbus
Mr. James McDonald, Columbus

080 - Governor's Award for Excellence in Environmental Protection Research
Ms. Joanna Asuncion, Columbus
Ms. Rahel Babb, Columbus
Dr. Anthony Blevins, Columbus
Mr. Ryan Bourgart, Grove City
Dr. Ruth Briland, Columbus
Mr. Rick Carleski, Galloway
Mr. Vladimir Cica
Ms. Annette De Havilland, Columbus
Mr. Ryan Ellis, Logan
Mr. Amber Hicks, Dayton
Mrs. Phoebe Low, Columbus
Mrs. Diane McClure, Columbus
Dr. Muhammad Mereb, Columbus
ROSTER OF SPONSORED AWARD JUDGES (CONT.)

Awards and Judges:

087 - Ohio Environmental Health Association Award
Ms. Emily Heppner, Reynoldsburg
Mrs. Irene Moore, Hopedale
Mrs. Sophie Nieport, Sidney

090 - Soil and Water Conservation Award
Ms. Emily Heppner, Reynoldsburg
Mrs. Irene Moore, Hopedale
Mrs. Sophie Nieport, Sidney

091 - Peter G. Finke Water Management Award
Mr. Zachary Smith
Mr. Peter Soltys, West Chester
Mr. Richard Weber, Celina

108 - Society of Petroleum Engineers Award
Mr. Len Fry, Butler
Mr. Mark Moody, Columbus
Mr. Mark Natoli, New Philadelphia

134 - American Chemical Society Columbus Section - Chemical Sciences Award
Mr. Robert Bird, Worthington
Dr. Kate Cahill, Columbus
Dr. Andy Chen, Powell
Dr. William Coldren, Columbus
Ms. Lisa Delp, Columbus
Ms. Sophia Ensey, Columbus
Dr. Ganesh Ethiraj, Dublin
Dr. Robin Grote, Westerville
Ms. Amber Hendricks, Columbus
Dr. Kasey Hill, Whitehall
Dr. Suma Kaveti, Dublin
Dr. Robert Kroshefsky, Marysville
Dr. David Nagib, Columbus
Dr. Brian Peebles
Mr. Allen Prusinowski, Columbus
Mr. Lalith Rao, Columbus
Ms. Joy Rutherford, Columbus
Mr. Justin Seffernick, Columbus
Mr. Emil Stoyanov, Dublin
Mr. Amy Tucker, Columbus
Dr. Frederick Villamena, Columbus
Dr. Anbo Wang, West Jefferson
Mr. Fredric Winer, Columbus
Dr. Derek Wolfe, Whitehall
Ms. G. Michele Yezzo, Galloway

136 - Cleveland Museum of Natural History's Outstanding Naturalist Award
Ms. Rebecca Donaldson, Mentor

139 - Ohio Oil and Gas Energy Education Program Award
Ms. Kennedy Copeland, Granville
Mr. Gregory Mason, Millersport
Mrs. Shawn Toy, Granville

145 - Osteopathic Medical Award
Ms. Gina Cifani, Chagrin Falls
Mr. Matthew Colpo, Dublin
Mrs. Manel Guessas, Hilliard
Ms. CeCelia Hanline, Athens
Ms. Emily Harris, Hamilton
Mr. Scott Jobe, Athens
Ms. Caroline Kurtz, Athens
Ms. Lauren Leesman, Cincinnati
Ms. Cheryl Markino, Columbus
Ms. Kristina Myers, Athens
Mr. Nishant Rangwani, Grandview Heights

148 - Future Physician - Scientist Award
Dr. Alecia Blaszczyk

157 - Plant Pathology Scholarship at The Ohio State University
Ms. Coralie Farinas, Columbus
Mr. Nathaniel Heiden, Columbus
Ms. Taylor Klass, Columbus
Dr. Monica Lewandowski, Columbus

182 - Outstanding Project in Plant Pathology
Ms. Coralie Farinas, Columbus
Mr. Nathaniel Heiden, Columbus
Ms. Taylor Klass, Columbus
Dr. Monica Lewandowski, Columbus

189 - Association of Ohio Music Therapists - Psychology of Music/Music Therapy Award
Mrs. Valerie Robinson, Hilliard

205 - University of Mount Union State Science Day Scholarship
Mrs. Jamie Greiner, Alliance

218 - The Ohio State University College of Engineering Scholarship
Mr. Sam Croarkin, Columbus
Dr. Howard Greene, Columbus
Dr. Alan Litsky, Columbus
Dr. Mark Ruegsegger, Columbus
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**Thank You Award Sponsors and Judges!**

*The Ohio Osteopathic Association judges at the 2019 SSD.*

*The Ohio Soybean Council Foundation judges at the 2019 SSD.*
If you attended State Science Day as a student...

We welcome you to JOIN the State Science Day Alumni Association.

There are no fees to join.

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

Alumni Benefits.

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

Ways to Support STEM education

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

This we believe.

Tens of thousands of Ohio students over nearly 90 years have benefited from participation in youth science opportunities including local, District and State Science Days of The Ohio Academy of Science. Early life experiences—like these—get under your skin in a most powerful way. These students’ scientific and engineering knowledge and skills, as well as their academic accomplishments, were fostered by early access to professionals, public recognition of their work, and scholarships. Re-connecting these students—now as alumni—in meaningful STEM-related experiences such as judging and other interactions will bring them personal and professional satisfaction and assist The Ohio Academy of Science.
**LETTER TO A YOUNG SCIENTIST**

*Embrace the Detour*

By Emily E. Wieringa, PE

Director of Construction at the Columbus Zoo and Aquarium

Emily E. Wieringa is Director of Construction at the Columbus Zoo and Aquarium and a Professional Engineer. A native of Bellefontaine, Ohio, she is a graduate of Bellefontaine High School and earned a civil engineering degree at Purdue University. An alumna of State Science Day and the National Youth Science Camp, she is a STEM Exemplar for The Ohio Academy of Science and Past-President of the Central Ohio Chapter of the American Society of Civil Engineers. In 2018, Emily was appointed to the Board of Trustees of Memorial Health in Marysville, Ohio.

During your ride through life there will be many roads leading to your dreams. Some will be straight and fast. Some will be steep, bumpy, and long. Without a doubt, there will be detours taking you on entirely new routes. Routes you never expected. No matter the distance of your journey, take it all in and pay attention to your personal detours. They can make all the difference in your life.

Main Street USA

Growing up I loved science, solving problems, and finding answers. Fortunately, my parents valued and fostered learning. I was exposed to a plethora of hands-on science activities, which truly inspired me. Seventh grade science fair was a curriculum requirement. This mandatory route introduced me to the world of hypotheses, experimentation, and the entire scientific process. I was hooked—wanting more and more science. Eighth grade brought my first science mentor into the landscape. Mr. Spencer Reames taught at a neighboring county high school. Passionately dedicated to teaching hands-on science, he held labs in the evening so his high school students could work on their science fair projects. He kindly allowed me to join his students and tackle sophisticated science projects throughout my high school career. My mentor opened the door to work in labs at The Ohio State University, exposing me to a level of molecular biology and genetics far advanced for a typical high school science curriculum. State and International science fair platforms offered me a glimpse into the magnitude of “what if?”

United Flight 2170

In the summer prior to my high school senior year, my journey landed me in Costa Rica in a college course on sustainable development. Rain forests, canopies, and indigenous plants deepened my interest in science and environmental conservation. This overseas study opened the eyes for a young, small-town, gal. The world coaxed me into learning even more.

In terms of learning, science fair work can be quite challenging. Just when you think you have an answer, something goes wrong or the conclusion throws you for a loop. As a teenager, the concept of time is not fully developed. My patience would grow thin when I hit bumps in the road, but I continued to try—and try again—searching for that elusive conclusion. My search for p53, a tumor suppressor gene in alfalfa and potato plants, never came to fruition. I never made an impact in that molecular genetics world, but still kept moving on.

Indiana State Route 26

Time to travel west to Purdue University with the thought of molecular biology as a career. I took for granted that my solid high school background would prepare me for chemistry weed-out courses. I was mistaken. The freshman college experience did not parallel my former detailed, hands-on, lab work. Roadblock ahead.

Detour No. 1: time to assess my strengths and true passion. Although I loved science, the actual application of science was more intriguing to me than pure research. For example, how to create something to better others and our world. Solution: switch to the
college of engineering. (Sidebar: my great-grandfather, grandfather, and father, as well as many other relatives, are engineers. Ironic how genetics led me into the field of engineering.)

Engineering did not come easy. It required a lot of study to maneuver through the theory and rigor, but I knew helping others through problem solving was in my destiny. Sitting behind a computer and calculating is not my niche. I enjoy people and communicating with teammates as we work toward a common goal or project. To be competent, however, one must learn all aspects of a respective field. College provided the theory behind engineering principles but not the actual hands-on of how things are built. Tracing my biological roots led to the construction road. Moving on.

Ohio State Route 33

Summers found me interning for construction companies, and I eventually ended up in the field working as a jobsite superintendent following college graduation. I was no stranger to construction as my family operated a construction company. Steep incline ahead.

Detour No. 2: women are not represented on construction sites. Yes, I was the only female in the field. For the first time in my life I felt so small and alone. It would have been easier to quit and move to a safe position behind the computer. I stuck it out taking the steep, winding, slow journey, aware that it takes time to gain respect from male counterparts. Determined to work harder and smarter than my fellow workers, I learned a lot and accrued much knowledge in the construction field. Trust me, I wanted this portion of my life to speed by, but five years of experience will always take five years. At times the real world is dreadfully painful, but you should always continue to learn from each of your detours and never give up on your passion. Paying my dues in a male dominated field allowed me to respect each person’s role in construction and helped me to learn the logistics of a construction project with all its intricate pieces. Each day holds mini detours on a jobsite. New variables pop into the picture creating a vast puzzle. With perseverance, bit-by-bit, the pieces eventually fall into place.

Hard work and going “above and beyond” in any activity will eventually pay off, no matter what field you choose. Believe me, those work ethics do not go unnoticed. Hard work is precisely what enabled me to move up the career ladder quickly and into project management.

At this point in my journey, I am speeding through the construction environment. Working with diverse groups of colleagues, we collaborated, implemented, and breathed 3D life into designs. The excitement of watching the end user walk into a newly constructed building or complex is what motivates me. I love the art of pulling a project together, accomplishing a goal, moving on to the next challenging project, and doing it all over again. Speed limit sign posted on a curve in the road. Slow down.

County Roads

Detour No. 3: balancing family with a time-consuming, stressful job. Children add a whole new, wondrous, dimension to life. They bring color and joy to your world. And along with the responsibilities of parenting come the nearly impossible decisions on how to blend career and family.

For a few years, I stepped back from the 70-hour construction work weeks. Up to this point in my life, success was always measured in tangible metrics: moving up the professional ladder and gaining more responsibility. That became easy in the professional world. What I struggled with now were the intangible metrics and the balance between personal and professional. When an opportunity presented itself to work at a county engineering office, I took a hard detour, left the rigor of private vertical construction, and dove into the new field of public infrastructure. This opportunity allowed me to understand the administration of public funds, apply for and oversee several grants, and work with a multitude of other government agencies—which I loved. It also gave me the time to study and pass my professional engineering licensure test. Although my experience at the county was fruitful, my true passion was in vertical construction and the next detour led me back.

Powell Road

Detour No. 4: actually, this detour was a reroute. Early in my project management years, I had the opportunity to serve as the general contractor’s project manager on several Columbus Zoo and Aquarium exhibits. What a perfect opportunity to blend science and engineering as I learned about the different animal
species. Our task was to create habitats which provided the safest, and most natural, environments for the animals—plus bring an immersive experience to the Zoo’s guests. We built biogeographic regions to transport a guest’s senses to the same regions as the animal species. It was like creating a piece of art. This reroute to Powell Road led me to many other zoo projects and the ability to specialize in zoological construction.

The professional reroute to zoo projects, as a contractor, ended up placing me in my current position as Director of Construction and Engineering for the Columbus Zoo and Aquarium. I would never have imagined working at a zoo back in high school. It has been a wonderful experience interacting with so many amazing people who are also passionate about science. Their devotion to saving animal species through conservation projects inspires me. My responsibility is to implement the visions of these devoted individuals by transforming our Zoo into specific geographical regions, allowing our guests to connect with wildlife. From design to construction and then to operation and maintenance, I get to witness the total experience.

Our Zoo not only works on conservation projects locally, but internationally as well. We support many programs abroad, and recently I have been able to assist with one of them. The Dian Fossey Gorilla Fund International (DFGFI) received funding from The Ellen DeGeneres Wildlife Fund to build a new campus for DFGFI’s organization in Rwanda. The Columbus Zoo President and CEO is on the board of the DFGFI, and asked if I would help by participating on the facilities committee that will oversee the construction of this new campus. The work DFGFI does is amazing! This year I was given the opportunity to go to Rwanda and see where this campus will be constructed. I have fallen in love with the country, its people, and the gorillas. There will be more to this overseas journey in the future, but it has been an amazing experience so far and I cannot wait to see this project through to completion.

Sure, there are highs and lows as there are in any career, but there is never a dull day at the Zoo. The things that both guests and animals do will never cease to amaze me. The amount of effort and creativity required to design and plan for what you think the animal will (or will not) do is about the same as planning for the human antics as well.

Some days you head for home deflated and beat down by the negative, but how you overcome the disappointments is what people will remember. You will make mistakes, but owning up to them, learning from them, then moving on will make you better and stronger in so many ways.

The Road Never Ends
My advice to young scientists is to be a life-long learner. At age 42, I still learn something new every day. I am grateful for those opportunities. It is easy to measure a professional career by job titles and salaries, but those who balance careers and personal well-being are the true superheroes. I encourage you to seek outlets that provide time to reflect. Running and travel are my go-to activities.

A clear perspective is essential for driving down future roads. Serendipitously, I just uncovered this piece of advice from Netflix® co-founder Marc Randolph (Elkins 2019). Randolph shared the rules of success his father gave him.

• Do at least 10% more than you are asked.
• Never, ever, to anybody present as fact opinions on things you don’t know. Takes great care and discipline.
• Be courteous and considerate always—up and down.
• Don’t knock, don’t complain—stick to constructive, serious criticism.
• Don’t be afraid to make decisions when you have the facts on which to make them.
• Quantify where possible.
• Be open-minded but skeptical.
• Be prompt.

These points resonate with me as well. I am still traveling down my life road and not sure when the next detour will appear or where it will take me. I have learned, however, to embrace detours every step of the way. I hope you will too. Enjoy the journey!


Traveling the Aisles of Science Fairs

By R. Lynn Gilliland, PE

R. Lynn Gilliland was a Licensed Professional Engineer in the state of Ohio, and worked as Senior Engineer for GM Powertrain in Defiance, Ohio, and GM Worldwide Facilities. He has had a long association with The Ohio Academy of Science, including as a former member of the OAS Board of Trustees.

“You came here today worried about the direction our youth are taking, their lack of purpose, and what’s in store for the future of our country. You’ll leave here today knowing there’s no problem!”

I heard that the first time I judged at State Science Day, and those words are the defining reason I’ve been judging for forty-five years. I’ve probably judged fifteen-hundred projects in those years, and my travels through "miles of aisles" of project tables has been wonderfully satisfying. I hope reading these words will encourage others to take the same journey.

February is here, heralding the “science fair season.” For the next few months I’ll be busy judging, and being reminded, again, “there’s no problem” with today’s youth. My wife tells me I’m never on a greater high than when I return from a science fair.

I’ve done a lot of traveling, and discovered many things, but my greatest discoveries have been in places few visit: high school gyms filled with the chatter of young scientists displaying their projects. The emerging of young minds and their capabilities is a wonder second to none—either in their descriptions of exciting new discoveries, or in their dogged determination of months spent in observing and recording phenomena to test a theory. Only if you have traveled with me, wandering among the tables and poster boards, would you have had a chance to see wonders like these:

– A homemade nuclear reactor producing radioactive cells for cancer treatment.
– A transmitting antenna perfected using Darwin’s theory of evolution.
– A camera that sees through dense material, by manipulation of its pixels.

Finding such projects, and talking with the teenagers who designed them, was the icing on my judging cake. But the real satisfaction lies elsewhere. It’s when I find a project that isn’t top-notch, but I see how it could be—for the next science fair, the next year, or the year after. It’s my job to tell the student: “This is not a superior project, but you can make it one. Here’s what you have to do.” Or maybe tell them: “You have a superior project now, but here’s what you need to do if you want a superior at the next level.” And no matter how much their projects fall short, my purpose is to shake their hand, and leave them with a desire to do it again.

I’ve been privileged to have judged amazing projects at the highest levels, but they aren’t necessarily the most important. My most important judging is when I approach a 6th or 7th grader being judged for the first time at a local fair. Fright often overwhelms their ability to explain their project. It is my job to put them at ease, and guide them to what they want to tell me. I may not have the ability to inspire them to greatness. I do, however, have the ability to destroy any desire they have: by being insensitive to their fright, or treating them harshly. It’s my job to make sure that doesn’t happen.

So how did I get here? How did this avocation become a passion?

That story is one you should learn for yourself—by volunteering to judge at science fairs. If you try it, you’ll be hooked by the young scientists, and rewarded many times over. Don’t hesitate because you’re concerned about your lack of knowledge. Every fair uses 2-person judging teams, and care is taken to pair new judges with experienced ones.

Yet, every year I’m disappointed because of the students who are not there—the ones from schools that do not have science fairs. Most notably missing are the city public schools. There are exceptions, but often we see little representation from Ohio’s urban schools. But there are enough exceptions to make me believe there’s an enormous amount of untapped science talent available in those schools—they just need an opportunity to display their talent.

A science fair provides that opportunity.

Contact local science teachers and school administrators to establish a science fair. The Ohio Academy of Science (www.ohiosci.org) will help.
Follow Your Passion

The Path to a Dynamic Career Begins at Franklin University

Be at the forefront of cyber innovation with a certificate or a degree through Franklin University's Center for Public Safety and Cyber Education (CPSCE). At the CPSCE, we can help you transform your interests into cutting-edge career skills. One of only three schools in Ohio designated as a National Center of Academic Excellence in Cyber Defense Education, Franklin University demonstrates its commitment to student involvement in cybersecurity activities through CPSCE-sponsorship of the Cbus Student Hack, an annual competition designed to help high school students build college and career-ready skills.

franklin.edu/cpsce

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<td>Ms. Ashley Hay</td>
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<td>Mrs. Amy Huelskamp</td>
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<td>Mrs. Pam Hunt</td>
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<td>Ms. Caroline Hyman</td>
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<td>Dr. Rafiq Islam</td>
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<td>Mr. Alan Jaffee</td>
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<td>Mr. Christopher Johnson</td>
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<td>Dr. Stephanie Johnson</td>
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<td>Dr. Mary Jones</td>
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<td>Dr. Vinay Joshi</td>
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<td>Mr. Jeff Jostpille</td>
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<td>Mrs. Dawn Justice</td>
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<td>Dr. Eliza Kaltenberg</td>
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<td>Mr. Kristyn Keriazes</td>
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ROSTER OF ACADEMY JUDGES (CONT.)

Ms. Jennifer Knisley, Columbus
Dr. Katherine Knostman, Columbus
Mr. Keith Koehler, Upper Sandusky
Dr. Arkaprabha Konar, Kent
Dr. Tatyana Konovalova, Avondale
Ms. Shannon Kopcha, Columbus
Mrs. Melissa Kowalski, Put-in-Bay
Ms. Samantha Kremidas, Louisville
Dr. Jessica Krizo, Akron
Mr. Price Kruse, Canal Winchester
Dr. Michael Kuhlman, Powell
Mr. Ram Lalgudi, Westerville
Mr. Nicholas Lamb
Mr. Stuart Lambert, Dayton
Mr. Shane Lanham, Columbus
Dr. Michele Lanning, Grove City
Mr. Wes Lanning, Grove City
Dr. Sara Laux, Westlake
Ms. Sara Lawhon, Mount Vernon
Mr. Jason Lawless, Cincinnati
Mrs. Michelle Lawless, Cincinnati
Mr. Elliott Lawrence, Toledo
Ms. Ange Leone, Lewis Center
Mr. Richard Leskovec, Pepper Pike
Ms. Lori Levering, Mount Gilead
Mr. Jeff Liao, Aberdeen
Dr. Jiayong Liu, Cleveland
Dr. Anthony Luscher, Columbus
Mr. Mei Ma, Hilliard
Ms. Beth MacLehose, Marengo
Mr. Pravin Mali, Plain City
Mr. Michael Mansfield, Columbus
Mrs. Jeanette Marshall, Alhambra
Ms. Alice Martin-Guy, Egg Harbor City
Ms. Laura Mason
Ms. Cella Masso-Rivetti, Columbus
Mrs. Olivia Matney, Ironon
Ms. Cheryl-Lynn May, Columbus
Mr. Aaron McCanty, Columbus
Mr. Stephen McConoughhey
Mrs. Anne McCoppin, Powell
Mr. Micah McCreery, Columbus
Dr. Jessica McGee, Columbus
Ms. Amber McGraw, Galloway
Dr. Nancy McMillan, Columbus
Mrs. Angela McMurry, Tipp City
Mr. Mike Menart, Columbus
Mr. Adam Miller, Columbus
Ms. Angela Minard-Smith, Marysville
Dr. Diane Minich, New Franklin
Mr. Tom Minor, Dayton
Dr. Shrilekha Misra, Columbus
Mr. Joe Monovich, Columbus
Dr. Erica Montbach, Kent
Ms. Kelly Moore, Grove City
Mrs. Laura Moore, Delaware
Mr. Mathew Morton, Columbus
Ms. Sharon Morton, Westerville
Dr. Vicki Abrams Motz, Ada
Mr. Matt Mowrer, Saint Clairsville
Dr. Bob Moyer, Plain City
Mrs. Srividya Murali, Dublin
Ms. Ann Murdock, Sunbury
Ms. Rachel Muti, Westerville
Dr. Prabakaran Nagarajan, Columbus
Mr. Jaime Navarrete, Tiffin
Mrs. Janae Newsom, Hudson
Ms. Elizabeth Nguyen, Gahanna
Dr. Xia Ning
Mr. Glenn Novotny, Hudson
Mr. Nathaniel Olson, Champaign
Dr. Barbara Oswald, Hamilton
Dr. Kenneth Oswald, Ada
Mr. Andrew Ours, Columbus
Dr. Lloyd Owens, Cuyahoga Falls
Mr. Siddharth Parekh, Houston
Dr. Richard Parent, Westerville
Dr. Ryan Paul, Lakewood
Dr. Zhenmeng Peng, Akron
Ms. Carole Peven McCarthy, Norwell
Dr. Fengmei Pi, Columbus
Dr. Gabriela Popa, Zanesville
Mr. Alan Price, Kettering
Ms. Iman Qamar, Columbus
Mr. Eric Rader, Bowling Green
Mr. Mohammad Rahman, Piketon
Mrs. Vandan Rajagopal, Dublin
Mr. Andrew Randall, Las Cruces
Mr. Amar Raut, Columbus
Dr. Yogi Raut, Fairborn
Mr. Ruth Ray, Warrensville
Mr. Tim Rennick, Columbus
Mr. Joseph Rice, Marysville
Mr. Jim Rogers, Columbus
Mr. Benjamin Roth, Columbus
Mr. Prasanta Kumar Sahoo, Dublin
Ms. Rachel Sanders, Springfield
Mr. Sean Sanguinoto, Pittsburg
Ms. Karen Sankovich, Dublin
Mr. Andrew Sauer, Cincinnati
Dr. Catherine Saveson, New Albany
Ms. Alexandra Savka, Columbus
Ms. Mackenzie Scharenberg, Columbus
Dr. Ted Scharf, Cincinnati
Dr. Jeremiah Schley, Columbus
Mr. Steven Schoenbaehler, Lebanon
Mr. Jonathan Scholl
Ms. Sabina Scott, Columbus
Ms. Tiffany Seale, Columbus
Mr. James Sebastian, Tipp City
Ms. Connie Sense, Mt. Orab
Dr. Paranthaman Senthamarai
Kannan, Mason
Dr. Puja Shahi, Lewis Center
Ms. Aditi Shankar, North Royalton
Ms. Brigid Sharek, Plain City
Dr. Patti Sharp, Loveland
Dr. John Shaw, Lewis Center
Mr. Ryan Shearer, West Salem
Ms. Sarah Shellenbarger, Galloway
Dr. Qian Shen
Dr. Joong Shin, Richfield
Mr. James B. Short, Bryan
Dr. Stephanie Shrader, Delphos
Mr. Ted Simmons, Richmond
Dr. Saranshu Singla, Akron
Dr. Brandon Sinn, Westerville
Ms. Aimee Sivillo, Plain City
Mr. Andrew Slanker, Fairborn
Mr. William Smith, Cincinnati
Mr. Bruce Smith, Zanesfield
Mrs. Trena Snowden, Pueblo
Ms. Reagan Speas, Springfield
Mr. Tim Spichiger, Granville
Mr. Joseph Stanek, Columbus
Mr. Tom Stewart, Toledo
Dr. Billie Stiffler, Canal Winchester
Mr. Art Stormer, West Mansfield
Dr. Myeong Suh, Hilliard
Ms. Karen Susenna, New Albany
Mr. Abigail Tanner, New Franklin
Ms. Sally Thomas, Columbus
Ms. Anru Tian, Athens
Mrs. Jani Tian, Bryan
Ms. Chau Tran, Boulder
Mrs. Lena Tucker, Columbus
Mr. Taras Turiv
Dr. Lynn Ulatowski, Pepper Pike
Mrs. Carol Ungvarskey, Broadview Hts
Ms. Michelle Vassar, Pataskala
Dr. Adil Wadia, Orrville
Mr. Eric Weibel, Dayton
Mr. Ray Welsh, Columbus
Dr. Angela Wendel, New Weston
Dr. Aaron Wenzel, Columbus
Mrs. Marissa White
Mr. Christopher Wier, Columbus
Mr. Christy Wilbur Guajardo, Springfield
Dr. Tiffany Wild, Canal Winchester
Ms. Cheryl Wilkes R.N., Akron
Mr. Grant Winney, Hudson
Mr. Jessica Wohlgamuth-Benedum, Grove City
Mrs. Chris Woltjen, Fredericktown
Mr. Richard Wood, Worthington
Dr. Ye Xia, Columbus
Ms. Qing Xiao, Powell
Mr. Congcong Xu, Columbus
Mr. Robert Yano, Columbus
Mr. Brian Yates, Columbus
Dr. Ruth Yerardi, Chillicothe
Dr. Gregory Yougey, Akron
Dr. Nicholas Young, West Jefferson
Mr. Matthew Young, Columbus
Mrs. Richelle Zbinden, Huber Heights
Dr. Amy Zmarowski, Hilliard

Future fields to explore
Do you know about agriculture? Learn more about this growing STEM field! Take a career survey and more at grownextgen.org/careers

GrowNextGen publishes science fair projects!
Take a look at our site and see what kinds of research other students have been doing! Students can post their soybean-related projects at grownextgen.org/student-research

grownextgen.org

Thank You Judges!
The opportunities within Bowling Green State University’s science programs let students discover new antibiotics, program a robot, come face-to-face with a Galapagos tortoise, or even feed butterflies.

Explore the world. Explore more at BGSU.

bgsu.edu/cas
Halle Miller

Halle is an environmental engineer at the Mannik & Smith Group, a consulting firm in Cleveland. She participated in local, regional, state, and international science fairs in middle and high school and has been judging these fairs since college. She has had multiple abstracts published in The Ohio Journal of Science and has won several STEM contests and grants at the international level. She is involved with organizations such as Engineers Without Borders, the Miami University College of Engineering and Computing Women’s Advisory Council Mentorship Program, and Girl Scouts.

Coming from a small public school with limited STEM resources, science fair was my favorite segment each year. (Especially thanks to Becky Karl, longtime science fair advisor at Columbia Local Schools!) In early high school, when thoughts of higher education were still far off for most of my peers, I was already working on science fair projects in a college laboratory and even attended the AAAS international conference.

Like any hobby, craft, or sport you will get out of science fair what you put into it. Besides the more evident benefits, I have learned that working on an original scientific project also offers the opportunity to develop equally important softer skills such as public speaking, time management, and developing the ability to think on your feet. I know I certainly reaped the benefits of my involvement, applying my science fair skill set to college courses and my current work as an environmental engineer. I cannot count the number of times a professor, advisor, or employer has asked where I learned to prepare a research poster, write and publish a succinct abstract, or articulate scientific findings to a non-scientific client. My answer each time is simple: science fair!

I would strongly encourage all students, even those who may not pursue a career in STEM, to participate in science fair because the experience you gain goes beyond the scientific and encompasses skills that will give you an advantage in many aspects of life.
It’s been quite a journey since my first State Science Day participation, but the lessons I learned from this amazing experience still hold true and were essentially the beginning of my personal journey to pursue a career in the medical sciences. The State Science Days were my first introduction to “professional” science. I learned how to present my work and sharpen my communication skills. I interacted with judges (both answering their queries and learning from their experiences) and explored the exciting work of fellow participants—gaining new ideas and developing friendships. The State Science Days truly energized my passion for science and sparked my interest into a new world of query and science. I experienced how “fun” it can be to explore, develop questions, test new ideas, and find out the answers.

Through these experiences, my interest grew and I ultimately pursued a career in academic medicine: both taking care of patients as well as developing the next generation of treatments and cures. I’m currently a vascular and interventional radiologist, and a faculty member in the Department of Radiology at The Ohio State University Wexner Medical Center and The James Cancer Hospital. I lead several research and quality improvement initiatives in my institution, promoting innovation and training future physicians and students in evidence-based medicine and research in clinical care. The problem-solving skills and the excitement of scientific query has carried me during my career since my State Science Days. Everyday I utilize the scientific method in my academic and clinical work to achieve the best clinical outcomes and breakthroughs.

I’m very thankful for the opportunities and lessons I learned at the State Science Days. I encourage this year’s young scientists and attendees to seize the opportunity to grow, develop, and explore, and to have fun! Keep asking questions and keep learning!

Social Media/Twitter: @MinaMakaryMD

Thousands of exhibitors, parents, judges, and officials arrive at OSU’s French Field House, early on a Saturday morning, for the 2018 SSD.
BioOhio is proud to support State Science Day and the Ohio Academy of Science. As Ohio’s bioscience organization, we are grateful to the schools, teachers, volunteers, and parents that support students in Ohio’s STEM programs.

Visit our website to learn about bioscience careers and schools offering programs to get you there. BioOhio.com/Education

Be part of Ohio’s bioscience community!

The BioOhio Patient Summit
July 24th in Columbus

The BioOhio Patient Summit – A Journey of Innovation & Healing, presented by BioOhio in partnership with PhRMA and Sarepta Therapeutics. Join us for an evening of hope and patient perspectives capped off by an elegant dinner celebrating Ohio’s bioscience community as we focus on the most important part of bioscience – its impact on patients here at home and around the world. A portion of the proceeds will support Ohio STEM activities. Ohio Academy of Science members may register at the BioOhio member rate.

Ohio Bioscience Networking Socials and Diversity Series
Visit BioOhio.com for upcoming dates and locations

BioOhio is planning a year full of fun networking socials and content rich seminars on diversity in the bioscience field. BioOhio socials are a consistent favorite among the bioscience community because of the lasting connections made. Networking socials are always FREE! to attend and open to anyone with an interest in the bioscience community, from CEOs to students. The popular Diversity in Bioscience series features fascinating conversations with speakers, covering topics from career paths, to scientific discovery and mentorship. Of course, ample time for networking is included in each event’s agenda.

BioOhio Supports Bioscience in Ohio

Networking | Advocacy | Events | Talent | Information | Cost Savings

Membership is available for all budgets, from students and individuals to startups and established companies.

Learn more and register at BioOhio.com/Events

Ohio’s Bioscience Organization | BioOhio.com | (614) 675-3686 | @BioOhio
NOW is your time, and RIGHT NOW would be a great time to plan a visit to Wright State! Join us for a guided tour or one of our special visit days. Find your future RIGHT HERE in Dayton at one of the lowest four-year tuition rates in Ohio.

wright.edu/now
As a program of The Ohio Academy of Science, the Buckeye Science & Engineering Fair (BSEF) provides all Ohio's students in grades 9 to 12 with an opportunity to qualify for the International Science & Engineering Fair (ISEF). The ISEF is the largest and most prestigious science fair in the world. Each year over 1,800 students from more than 80 countries, regions, and territories around the world gather to compete for nearly $5 million in awards and scholarships. For information please visit Intel ISEF at https://www.societyforscience.org/isef/.

Students will need to qualify for the BSEF through their District Science Days. Each district will be allocated a certain number of students (grades 9 to 12 only) that can qualify for BSEF. These qualifying students will then be able to compete at the BSEF for the opportunity to advance to the ISEF.

On April 6, 2019, nearly 100 students (above) from more than 50 high schools gathered at CAS in Columbus to compete for the opportunity to advance to the International Science and Engineering Fair. The 7 Buckeye finalists (below) prior to judging at the ISEF in Phoenix on May 15, 2019.

On the judging floor at the 2019 ISEF in Phoenix.
Each year, The Ohio Academy of Science selects the top pre-college students who presented at our Annual Meeting. These students are recognized as Melvin Scholars, and have the opportunity to represent Ohio at the national-level American Junior Academy of Science (AJAS) meeting. The AJAS meeting—held in conjunction with the American Association for the Advancement of Science (AAAS) meeting—provides Ohio students an opportunity to meet other pre-college researchers from across the country as well as thousands of STEM professionals from around the world.

In addition to interacting with other student scientists and professionals, there is a full schedule of activities for the students to participate in throughout the week. These activities include interactive laboratory experiences, field trips, plenary lectures, and small-group meetings with world renowned scientists and engineers. In 2020 (Seattle, WA) the AJAS participants spent an evening with an astronaut and listened to Mr. Bill Gates speak live at a AAAS keynote.

The AJAS poster presentation (above) is held in the main venue of the AAAS annual meeting. Many of the professional scientists attending the AAAS meeting visit the AJAS poster presentations—seizing their opportunity to network with the future leaders of their professions.

Every AJAS meeting holds a grand Honors Banquet (right). Pictured is the 2020 banquet (among the aircraft) at The Museum of Flight in Seattle, Washington.
If you’ve set your sights on a science career, your educational journey should begin at Ohio Northern University. Ranked No. 4 among Midwest regional liberal arts colleges by U.S. News & World Report in Best Colleges 2019.

If you’ve set your sights on a science career, your educational journey should begin at Ohio Northern University. Ranked No. 4 among Midwest regional liberal arts colleges by U.S. News & World Report in Best Colleges 2019.

onu.edu/apply

OHIO NORTHERN UNIVERSITY
Each year in April, for 129 years, The Ohio Academy of Science holds an Annual Meeting. The Ohio Academy of Science’s Annual Meeting is for academic, governmental, and industry scientists and engineers; university and pre-college educators; pre-college, undergraduate, and graduate students; and interested lay citizens in the Ohio region. Annually, over one hundred scientific presentations—both poster presentations and podium sessions—are complemented by workshops, symposia, and an all-academy lecture and lunch.

An annual call for papers is held in the fall, prior to the year of the April meeting. Professionals, college students of all levels, and pre-college students are encouraged to submit. Research papers are welcome in ALL FIELDS of science, engineering, technology, education and their applications. All submissions will be peer-reviewed, and those found acceptable will have the abstracts published in the April Program Abstracts issue of The Ohio Journal of Science (OJS) https://ohiojournalofscience.org/index. Publication in The OJS assures that researchers across the world will have permanent online access to these abstracts.

You are invited to the 130th Annual Meeting, hosted by Edison State Community College, Piqua, Ohio, on April 24, 2021.

Below are pictures from the 128th Annual Meeting of The Ohio Academy of Science, hosted by Columbus State Community College, Columbus, on April 13, 2019.

Facility and students from Walsh University (above), North Canton, Ohio.

Podium Session (above)

Lake Erie panel discussion experts (below)

Dr. Vicki Motz (above), OAS President

Poster Session (above)

A panel discussion (above), with four scientific experts, was held on the topic of “Lake Erie: Ohio’s Great Lake—Status, Trends, and Threats.”
The Ohio Journal of Science (OJS) has published peer-reviewed, original contributions to science, education, engineering, and technology since 1900. The OJS encourages submission of manuscripts relevant to Ohio, but readily considers all submissions that advance the mission of The Ohio Academy of Science: To foster curiosity, discovery, innovation, and problem-solving skills in Ohio. The Academy produces two issues annually: peer-reviewed April Program Abstracts (Issue No. 1) and peer-reviewed full papers in December (Issue No. 2). The Ohio State University Libraries publishes both issues Open Access online on behalf of The Ohio Academy of Science. The Academy distributes a print version of the April Program Abstracts at the annual meeting. Peer-reviewed articles are published as accepted throughout the year and compiled at year end into a single online volume. The OJS is indexed by Google Scholar and multiple other services.

The OJS considers original contributions from members and non-members of the Academy in all fields of science, technology, engineering, mathematics, and education. All manuscripts considered for publication will be peer-reviewed.

The OJS—in exceptional circumstances—will publish fully peer-reviewed papers by pre-college students.

The OJS has international exposure. During the past decade OJS online articles were accessed more than 4,793,609 times by researchers in more than 150 countries at an average rate of more than 1,300 per day.

https://ohiojournalofscience.org/
ROSTER OF STUDENT EXHIBITORS

MR MOHAMED IBRAHIM ABDELHAMED
Grade: 06  Individual project
Dayton Islamic School, Beavercreek
The Effect of LED Color on Energy Consumption

MS NOOR ALEXANDRIA ZIAD ABUKARAM
Grade: 11  Individual project
Bounty Collegium, Sylvania
Reduction of Unwanted Light Reflection From the Surface of a Substance

MS SYNEE MARIA ZIAD ABUKARAM
Grade: 12  Individual project
Bounty Collegium, Sylvania
Determining the Antibacterial Properties of a Novel Textile

MS LAALITYA ACHARYA
Grade: 11  Individual project
William Mason HS, Mason
Nereid: An Interdisciplinary Approach to Detect Bacteria in Water using Microscopic Images for Early Detection of Water-Borne Diseases

MS LAASYA ACHARYA
Grade: 07  Individual project
Mason MS, Mason
Panacea - A Neural Network System to Detect Lung Fluid Buildup for Early and Accurate Detection of Pneumonia

MS CORINNE ADAMS
Grade: 08  Team project
Walnut Hills HS, Cincinnati
Poison Ivy Withstands Washing

MS JORDYN ADAMS
Grade: 09  Individual project
Bloom Carroll HS, Carroll
How Cinnamon Essential Oils Affect Mouth Microorganisms

MS RUTH ADAMS GEMMELL
Grade: 08  Individual project
St Vincent DePaul, Akron
Gobble, Gobble, Gone! Eliminating Hepatitis C

MR MOHAMED IBRAHIM ABDELHAMED
Grade: 06  Individual project
Dayton Islamic School, Beavercreek
The Effect of LED Color on Energy Consumption

MR KEVIN AGNEW
Grade: 11  Individual project
Carroll HS, Dayton
LED Pacino: Improving the Exercise Experience

MR ABDULLAH SHAAD AHMED
Grade: 06  Individual project
Dayton Islamic School, Beavercreek
Video Games = Exercise?

MR JACK AHONEN
Grade: 06  Individual project
Conesville ES, Conesville
Hammering Force Into Different Types of Woods

MR ANDREW GUS AKEL
Grade: 06  Individual project
Menlo Park Academy, Cleveland
Is the 5 Second Rule True?

MR ADITYA AKULA
Grade: 11  Team project
New Albany HS, New Albany
Computational Modeling of Biofilm Morphologies using Pair Correlation Functions

MS SREEJA AKULA
Grade: 08  Individual project
New Albany HS, New Albany
Can image After-effects be canceled using the negative of the image?

MS GRACYN ANN ALEXANDER
Grade: 06  Individual project
Big Walnut Intermediate, Sunbury
Hydro Flask Vs. Thermo Flask

MR WILLIAM E ALLEN
Grade: 07  Individual project
Buckeye Valley Local MS, Delaware
The Effect of Metal Alloy Composition on Resistivity

MR JORDAN CHARLES ALLSHOUSE
Grade: 12  Team project
Northwestern HS, W Salem
The ChiroCushion

MR ETHAN TIMOTHY ALTER
Grade: 11  Individual project
Mayfield HS, Cleveland
Biophysical Studies of the Variable Domain (VD) of Dynamin Related Protein 1 (Drp1)

MR ANDREAS ANTONIOU
Grade: 06  Individual project
St Anthony Of Padua, Lorain
Getting Soda Cool

MR VISHAL ARAVIND
Grade: 08  Individual project
Mason MS, Mason
Effect of ripeness on Sugar level in Bananas

MS ABBY KATE ARGENTA
Grade: 08  Team project
St Anthony Of Padua, Xenia
The Deflation Occasion

MR CARLIRINA E ANDRADA
Grade: 11  Individual project
The University School, Chagrin Falls
The Utility of Biomarkers in 1p/19q Co-deleted Fibrillary Astrocytomas

MR JORDYN ADAMS
Grade: 09  Individual project
Bloom Carroll HS, Carroll
How Cinnamon Essential Oils Affect Mouth Microorganisms

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East Richland Christian School, St Clairsville
Road Runner Vs. Hot Rock Which is more effective?

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Grade: 08  Team project
St Anthony Of Padua, Xenia
The Deflation Occasion

MR CAMDEN KEITH ARLEDGE
Grade: 05  Team project
Zane Trace MS, Chillicothe
Pinewood Pro

MS ELLA ARMSTRONG
Grade: 07  Individual project
Jackson MS, Jackson
Vehicle Safety

MS SYDNEY ARN
Grade: 06  Individual project
St Michael Consolidated, Ripley
The Deflation Occasion

MR LOGAN MARSHALL ARNOLD
Grade: 08  Team project
St Brigid ES, Xenia
Robotically Solving A Rubik’s Cube

MS NATALIE M ARWINE
Grade: 08  Individual project
Bishop Leibold E & W Campus, Dayton
Wormageddon: Greywater Vs. Worms
### ROSTER OF STUDENT EXHIBITORS

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Project Type</th>
<th>Project Title</th>
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<tr>
<td>MR Danny Assi</td>
<td>09</td>
<td>Team project</td>
<td>Ottawa Hills Junior/Senior HS, Ottawa Hills Bridge Type Effectiveness</td>
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<td>MS Anna Ataei</td>
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<td>MR Rohan Athavale</td>
<td>09</td>
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<td>MS Gitika Badiga</td>
<td>08</td>
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<td>Hyatt's MS, Powell How to Lift Heavy Loads Using Hydraulics</td>
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<td>MR Andrew James Baden</td>
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<td>MS Grace Bette</td>
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<td>MR Caden Mathew Kozuh Bistrek</td>
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<td>MS Mira Bechtol</td>
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<td>MS Madison Beck</td>
<td>09</td>
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<td>Pettisville HS, Pettisville The Presence of Bacteria on Various High School Surfaces</td>
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<td>Fayetteville Perry MS, Fayetteville Maintaining Moisture</td>
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<td>MS Brianna L Bell</td>
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<td>Hilltop HS, West Unity Determining Ratios Among Intervals in the Musical Scale</td>
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<td>MS Anagrace Marie Bennett</td>
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<td>Tippecanoe HS, Tipp City Soybeans: An Alternative for Petroleum</td>
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<td>MR Jack Ryan Benoit</td>
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<td>MS Benicia Bernard</td>
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<td>St Paul, N Canton Protecting RFID Cards from Rouge Readers</td>
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<td>MR Joshua Adam Berning</td>
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<td>MS Grace Bete</td>
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<td>Carroll HS, Dayton The Effect of Calcium Carbonate on the Dissolution of Ibuprofen</td>
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<td>MR Rishith Bethina</td>
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<td>MS Kayla Annmarie Biasi</td>
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<td>MR Dominic H Blecher</td>
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<td>St Louis ES, Owensville Does Criticism Positively or Negatively Affect the Mind?</td>
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<td>MS Asantewa Bonna</td>
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<td>Horizon Science Academy, Columbus Chlorophyll Pigments for Dye-Sensitized Solar Cells to Increase Solar Panel Efficiency</td>
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<td>Bishop Leibold E &amp; W Campus, Dayton Cinnamon Science</td>
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<td>MR Maya Grace Bowers</td>
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<td>National Inventor's Hall of Fame MS, Akron How to Build a Solar Powered Heater</td>
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<td>MS Rosalia Brook Bowling</td>
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<td>MS Caitlyn Bowser</td>
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The Ohio Academy of Science 39
ROSTER OF STUDENT EXHIBITORS

MS AMANDA BRAIG
Grade: 08 Individual project
St Columban, Loveland
Thirdhand Smoke: Cigarettes Vs. E-Cigarettes

MR JULIEN CHRISTOPHER BRANDON
Grade: 08 Individual project
St Andrew, Columbus
Is Spider’s Silk able to Retain Tensile Strength in Different Environments?

MR AARON JACE BRATKA
Grade: 07 Individual project
Bellbrook MS, Bellbrook
Brother Repeller

MS JULIA BRAUNER
Grade: 07 Individual project
St Edward, Ashland
Do Cats Bond with their Human Owners?

MS MAYA HELEN BRAUSCH
Grade: 08 Individual project
St Columban, Loveland
Are Devices a Pain in the Neck?

MS JULIA NICOLE BRAY
Grade: 12 Individual project
Lincoln HS, Gahanna
An Investigation of Bacteria Filtration with Activated Charcoal

MS KENNEDY LANE BREHM
Grade: 09 Individual project
Bloom Carroll HS, Carroll
The Effects of Tea on Oral Health

MS JENSEN LEE BRITT
Grade: 10 Individual project
Beaver Local HS, Lisbon
How does Enteric Coating Impact the Solubility of Ibuprofen?

MS JAYCIE ANGELA-JEAN BROSHEAR
Grade: 05 Individual project
West Elkton ES, W Elkton
Hamster Palooza

MR BLAKE AUSTIN BROWER
Grade: 05 Team project
Zane Trace MS, Chillicothe
Pinewood Pro

MR ALEC KADE BROWN
Grade: 10 Individual project
St Peter, N Ridgeville
Is Bacteria Present in Commercial Bottled water?

MR JOHN DAVID BRUNNER II
Grade: 09 Individual project
Lehman Catholic HS, Sidney
Biodiesel Efficiency

MS HELEN JOY BRYSON
Grade: 07 Individual project
Miller South Visual&Performing Arts, Akron
Electrophysiology of the Venus Flytrap

MS CHARLOTTE GRACE BUCHHOLZ
Grade: 06 Individual project
Terrace Park ES, Terrace Park
Is Your Hydro Flask Up To the Task

MR DAVID PAUL BUKOWSKI
Grade: 07 Individual project
National Inventor’s Hall of Fame MS, Akron
Does it Make an I.R.D.?

MR ALLY ELIZABETH BURGER
Grade: 05 Individual project
St Thomas More, Cincinnati
Don’t be Under Pressure to Score a Goal

MS BRIGID BURKE
Grade: 08 Individual project
Sts Philip & James, Canal Fulton
The Best Conditioner

MR ALEC KADE BROWN
Grade: 07 Individual project
Mary Emma Bailey ES, Dublin
Putting a Lid on Energy Waste

MR NATHAN CANTER
Grade: 05 Team project
Valley MS, Lucasville
Egg-Cellent Egg-Speriment

MS ANNMARIE CANZONI
Grade: 08 Individual project
St Michael, Independence
How do Protein Shakes Affect Weight Loss and Energy Levels?

MR ALEXANDER CARR
Grade: 05 Individual project
John Sells MS, Dublin
Recycling: it’s as Easy as A.I.

MS SOPHIA ROSE CARTER
Grade: 11 Individual project
Carroll HS, Dayton
Evaluating the Effectiveness and Longevity of Steam Cleaning versus Chemical Cleaning

MS ALLISON ELAINE CARTWRIGHT
Grade: 08 Individual project
Bethel JS, Tipp City
The Power of Fruit

MR GIANCARLO CEFARATTI
Grade: 07 Individual project
St Anselm, Chesterland
A Decoupled Aquaponics System Improves the Production, Yield and Quality of Microgreens within the Brassicaceae and Asteraceae Families Vs. a Traditionally Coupled Aquaponics System

MS GIULIANA CEFARATTI
Grade: 07 Individual project
St Anselm, Chesterland
Does it Make an I.R.D.?

MR NOAH CENCI
Grade: 05 Individual project
Russellville ES, Russellville
The Relationship between Temperature and Kinetic Energy

MR KAYA EKIN CECYHAN
Grade: 11 Individual project
Upper Arlington HS, Upper Arlington
Body Mass Index on Gut Viral Communities

MS DEFINE CEYHAN
Grade: 11 Individual project
Upper Arlington HS, Upper Arlington
Impact of a Mediterranean Diet and Exercise on Body Mass Index

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MR SUDARSHAN VENKAT CHAKRAVARTHY
Grade: 12 Individual project
Beavercreek HS, Beavercreek
Exploring Neural Pathways in Cocaine Use Disorder

MR CHENG (JERRY) CHEN
Grade: 11 Individual project
Dayton Christian School, Miamisburg
Efficiency of Coil Guns at Various Voltages

MR JOHNNY XING CHEN
Grade: 08 Individual project
Dayton Regional STEM School, Kettering
Bioconversion of Waste Cooking Oil with Yarrowia Lipolytica

MR VINCENT CHEN
Grade: 11 Individual project
The University School, Chagrin Falls
Using Blockchain to Streamline the College Application Process

MR JOEL CHERUIYOT
Grade: 07 Team project
Walnut Springs MS, Westerville
The Miracle Formula

MR NOAH ALAN CHESSHIR
Grade: 07 Individual project
Global Impact STEM Academy, Springfield
Which Makeup Retailer has More Bacteria on their Testers?

MS CHRISTINA STEPHANIE CHICATELLI
Grade: 08 Individual project
St Vincent DePaul, Akron
Do the Sunscreen Ingredients Oxybenzone and Octinoxate Affect Land-Bound Plants Similarly to Their Effect on Coral?

MS LUCY HELEN CHMURA
Grade: 11 Individual project
St Vincent St Mary, Akron
Nanoparticle Suspensions: An Examination of Alkaline Metal Chloride Electrolytes on Titanium Dioxide Surface Potential

MS SNEHAL CHOUDHURY
Grade: 10 Individual project
Jackson HS, Massillon
Creating an Alcohol-Free, Essential Oil-Based Sanitizer for Better Hand Hygiene

MR SAMURAI T. CHUNG
Grade: 08 Individual project
St Mary of the Falls, Olmsted Falls
Fuel of the Future

MR SAI PRATHAM CHUTKAY
Grade: 05 Team project
Willard Grizzell MS, Dublin
Is your Water Safe?

MS SAISIDDI S CHUTKAY
Grade: 05 Individual project
Willard Grizzell MS, Dublin
Harnessing Drinkable Water Using Condensation

MR DYLAN THOMAS CIANCIOLLO
Grade: 11 Individual project
Roger Bacon, Cincinnati
How the Density of a Medium Affects the Speed of Light

MR ANDREW M CICCOTELLI
Grade: 11 Individual project
St Vincent St Mary, Akron
The Synthesis of Helical Polymer Containing a ROTC Complex

MR CHARLEY WYATT CLYNE
Grade: 08 Team project
Zane Trace MS, Chillicothe
Alternative Paper

MS KYLIE COCHRAN
Grade: 05 Individual project
Big Walnut Intermediate, Sunbury
Kick It

MS MADELINE R COLE
Grade: 09 Individual project
Liberty Union HS, Baltimore
The Effects of Epi-Genetics on Kryptopyroluria

MS CAYLEE BREE COMBS
Grade: 11 Team project
Rutherford B Hayes HS, Delaware
Duckweed as a Natural Additive for Commercial Fertilizer

MS EMMA CONNERS
Grade: 11 Individual project
East Richland Christian School, St Clairsville
How Water Quantity Affects Soybean Germination of Inoculated Soybeans

MR WALT CONTE
Grade: 08 Individual project
John C Dempsey MS, Delaware
The Lightning Liquifier - A Study of the Efficiency of an Electrical High Voltage Arc Furnace

MS FABI MAI CORSO
Grade: 08 Individual project
St Andrew, Columbus
How much more Waste is on Cedar Point Beach on Sunday Afternoons than on Tuesday Afternoons? Of that Waste how much is Trash, and How much is Recyclable? How much is Plastic?

MS NATALIE ELIZABETH COTTON
Grade: 08 Individual project
Liberty Union MS, Baltimore
Prader Willi Syndrome

MS CALEIGH CULVER COYLE
Grade: 08 Individual project
St Peter, Huber Hts
What Terrain is Best for a Hovercraft?

MS AVA LAYNE CRAWFORD
Grade: 05 Individual project
Unioto ES, Chillicothe
How Does Sugar Affect Weight Gain?

MS CAILTYN CRAWFORD
Grade: 09 Individual project
Global Impact STEM Academy, Springfield
The Effect of Changing the Composition of Slime

MS GRACE CRAWFORD
Grade: 08 Team project
Pettisville HS, Pettisville
How Soil Type Affects Sunflower Growth

MR NICHOLAS JAMES CRIBBET
Grade: 08 Individual project
National Inventor’s Hall of Fame MS, Akron
Too Hot to Handle

MR MIHAI CRISAN
Grade: 10 Individual project
Upper Arlington HS, Upper Arlington
Computational Performance Comparison of Photonic Transistors to Electron Transistors

MS DASHA CROCKER
Grade: 11 Individual project
Bellbrook HS, Bellbrook
Should I Observe Tonight? Determining Limiting Magnitude In Bellbrook, Ohio

MS RYA CROCKER
Grade: 07 Individual project
Bellbrook MS, Bellbrook
Time Flies When You’re Having Fun

MR EMERSON KELLEHER CROWL
Grade: 07 Individual project
Athens MS, Athens
The Biodegradation Race

MS EMILY CSEH
Grade: 12 Individual project
Mentor HS, Mentor
The Effectuality of BLOC in Forensic Data Collection

MS MARY MCKENZIE CUNNINGHAM
Grade: 06 Individual project
Ridgewood School, Springfield
Local Levels of Lead

MR KAIJEN CURTIS
Grade: 05 Individual project
St Paul, Salem
A Bright Wireless Future
MR MATTHEW BENJAMIN CYMERMAN  
Grade: 06  Individual project  
National Inventor’s Hall of Fame MS, Akron  
Are all Permanent Markers Really Permanent?  

MR AAGAM DALAL  
Grade: 11  Team project  
New Albany HS, New Albany  
Computational Modeling of Biofilm  
Morphologies using Pair Correlation Functions  

MS KAYLEE ANNE DALEY  
Grade: 08  Individual project  
St Francis Of Assisi, Gates Mills  
Engineering Electronic Connections  

MR JAEDEN MICHAEL DANCY  
Grade: 06  Individual project  
National Inventor’s Hall of Fame MS, Akron  
Basketball: The Secret To Successfully Banking A Shot  

MS EMMA DANDO  
Grade: 06  Individual project  
St Raphael, Bay Village  
Muffin Madness: Getting a Rise Out of Baking Powder  

MR NATHAN DANDO  
Grade: 08  Individual project  
St Raphael, Bay Village  
Rotten Bones: How Different Drinks Relate to Tooth Decay?  

MS VIVIAN DAO  
Grade: 10  Individual project  
Carroll HS, Dayton  
Optimal Thermal Insulation Using Aerogels  

MR PRANAV KUMAR DAS  
Grade: 05  Team project  
New Albany Intermediate School, New Albany  
Calculating Efficiency of Wind Turbine Blade  

MR RITAV DAS  
Grade: 06  Team project  
Henry Karrer MS, Dublin  
Testing and Improving Car Safety Design Features  

MR HARBIR SINGH DASS  
Grade: 09  Individual project  
The University School, Chagrin Falls  
Torsional Stiffness of a Competition Go Kart Frame  

MS MIKAELA RAE DAVALA  
Grade: 06  Individual project  
St Raphael, Bay Village  
Numerous Nitrates  

MR COREY SCOTT DAVIS  
Grade: 06  Individual project  
Chesapeake MS, Chesapeake  
Would You Rather Kiss Me or My Dog?  

MR DARRELL LEE DAVIS  
Grade: 11  Team project  
Buchtel Community Learning Center, Akron  
Project Clean the Air  

MR GRIFFIN KAI DAVIS  
Grade: 05  Individual project  
National Inventor’s Hall of Fame MS, Akron  
How does the Nitrate in Water Affect the Angle of Refraction  

MS SYDNEY ELIZABETH DAVIS  
Grade: 09  Individual project  
Western Brown HS, Mt Orab  
Conservation Transformation Project  

MR CADEN STILES DAVISON  
Grade: 07  Individual project  
Columbia MS, Columbia Station  
How Antioxidants Affect Oxidation  

MS ALI NICOLE DEL VESCO  
Grade: 06  Individual project  
Big Walnut Intermediate, Sunbury  
Homemade v.s. Store-bought  

MR KAI REAGAN DELISING  
Grade: 11  Individual project  
Bellbrook HS, Bellbrook  
Can it be Cracked?  

MS KAORI LINCOLN DELISING  
Grade: 09  Individual project  
Bellbrook HS, Bellbrook  
Let Them Eat Coke  

MR DOMENIC RUSSELL DEMAGALL  
Grade: 06  Individual project  
Columbia MS, Columbia Station  
Which Liquid will Clean a Penny the Best  

MS CAROLINE DENNY  
Grade: 10  Individual project  
Alliance HS, Alliance  
How does the length of exposure to CaCl2 affect the Transformation Efficiency of E. coli?  

MS ANNELISE RAELIN DEPENBROCK  
Grade: 07  Individual project  
St Michael Consolidated, Ripley  
The 5 Second Rule: Fact or Fiction  

MS ALLYSON LYNN DEPROFIO  
Grade: 12  Individual project  
Olentangy Orange HS, Lewis Center  
Public Health Awareness in Teens  

MR ARYAN DESARAPU  
Grade: 08  Team project  
Herman K Ankeney MS, Beavercreek  
Active Glare Reduction For Night Drivers: Tweak Your Senses, Use Polarized Lenses  

MR ALEX DEVINE  
Grade: 10  Individual project  
The University School, Chagrin Falls  
Sunscreen to Solar Power: Creating and Testing a Zinc Oxide Dye Sensitized Solar Cell  

MR YASHAS KRISHNA DEVULAPALLY  
Grade: 06  Individual project  
New Albany Intermediate School, New Albany  
Does Password Length Matter for it’s Security?  

MR SAMUEL LOGAN DEYLDER  
Grade: 07  Individual project  
St Columban, Loveland  
The Use of Cryoaulation as an Alternative Treatment for Rhabdomyosarcoma  

MS ISHITA PRASAD DHOPAVKAR  
Grade: 07  Individual project  
Bunsold MS, Marysville  
Calculating the Speed of Light in my Kitchen  

MR JORDAN ELIJAH DICKERSON  
Grade: 11  Team project  
Buchtel Community Learning Center, Akron  
Project Clean the Air  

MR MATTHEW DYLAN DILORETO  
Grade: 07  Individual project  
St Peter, N Ridgeville  
Timber  

MS LIDIA DIMASCIO  
Grade: 07  Individual project  
St Francis DeSales, Akron  
From Trash to Gas: Biogas and Biomass  

MS GRETA DIRKING  
Grade: 07  Individual project  
Mother Teresa Catholic, Liberty Twp  
Which Lotion Moisturizes Best?  

MS EVELYN DISALVO  
Grade: 05  Individual project  
Bloom Carroll MS, Carroll  
Focus and Stress Test  

MR GEETH DONEPUDI  
Grade: 06  Team project  
Henry Karrer MS, Dublin  
Testing and Improving Car Safety Design Features  

MS LAHARI DONEPUDI  
Grade: 08  Individual project  
Henry Karrer MS, Dublin  
Sunspots Vs. Earth’s Weather
<table>
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<tr>
<th>Name</th>
<th>Grade</th>
<th>Project Type</th>
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<td>MS KELLY DONG</td>
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<td>Dayton Regional STEM School, Kettering</td>
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<td>Cobs better than Corn</td>
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<td>MR WILL DRAGOO</td>
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<td>MS MEGAN DUNLAP</td>
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<td>Summit Country Day, Cincinnati</td>
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<td>What is the Healthiest Drinking Water?</td>
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<td>St Brigid ES, Xenia</td>
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<td>Robotically Solving A Rubik's Cube</td>
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<td>Building a Pulse Oximeter Heart Rate Sensor and Comparing it to One Used in a Hospital</td>
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<td>The Filtration of Nanosilver from Water Using Hollow Fiber and Carbon Membranes</td>
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<td>Sound Absorbers All Over</td>
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<td>MS FAYE EDMONDSON</td>
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<td>Does the Type of Each Stitch Affect How Much a Bag Can Carry?</td>
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<td>How Does Relative Humidity Affect Cracking of Macarons?</td>
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<td>The Effect of Acoustic Waves on Glycine Max Growth: Phase 2</td>
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<td>MS JORDYN FERENCE</td>
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<td>MR MARIO FERRERI</td>
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<td>MS ERIN FINNERTY</td>
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<td>Kilbourne MS, Worthington</td>
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<td>The Effects of Inoculants on Soybeans</td>
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The Roster of Student Exhibitors
ROSTER OF STUDENT EXHIBITORS

MS GRACE FISHER
Grade: 12 Individual project
Sylvania Southview HS, Sylvania
The Effect of Mindfulness on Stress and Health in Police Detectives.

MR PARKER M. FISK
Grade: 05 Individual project
Unioto ES, Chillicothe
How Do Different Environments Affect Plant Growth?

MS RYAN LEIGH FITCHPATRICK
Grade: 08 Individual project
Holy Angels, Sidney
Is Time on Your Side?

MR LUKE FLEEMAN
Grade: 05 Team project
Valley MS, Lucasville
Egg-Cellent Egg-Speriment

MS ISABEL FLORES
Grade: 07 Individual project
St Patrick, Troy
Caffeine Crazed

MR AUGGIE FLORKOWSKI
Grade: 07 Individual project
St Gertrude, Cincinnati
Drag Vs. Lift | Investigating the perfect Winglet

MS RILEY THERESA FLOWERS
Grade: 05 Individual project
St Ambrose, Brunswick
Super Slime

MR LIAM FLYNN
Grade: 07 Individual project
St Rita, Solon
Red, Black, Blue, What’s Your Hue? Color’s Effect on Memory

MS SOPHIE BELLE FONG
Grade: 10 Individual project
Troy HS, Troy
The Calming Effects or Different Stimuli on Autistic Children

MS ELAYNA FOOR
Grade: 10 Individual project
Bloom Carroll HS, Carroll
Small Engine Emissions, Big Pollution Problems

MR DAWSON FORBUSH
Grade: 09 Individual project
Chesapeake HS, Chesapeake
Fighting Flames

MR JAMES THOMAS FORNADEL
Grade: 07 Individual project
St Rita, Solon
The “Beat” of the Heart: The Effects of Music on Blood Pressure

MR ZAINE FOSTER
Grade: 07 Team project
Walnut Springs MS, Westerville
Crystal pHace Off

MR JUSTUS TANINGCO FRANKS
Grade: 07 Individual project
Genoa MS, Westerville
What is the Most Effective Deicer?

MS ELIZABETH MARYL YANG FRANTZ
Grade: 05 Individual project
St Mary Immaculate Conception, Wooster
Macroinvertebrate Leaf Species Preference: A comparative Study

MR AARON FRAZIER
Grade: 11 Individual project
Carroll HS, Dayton
Designing a Programming System for Children with Developmental Coordination Disorder

MR MICHAEL FANGZHOU GE
Grade: 07 Individual project
Montessori Mahoning Valley, Youngstown
The Best Method of Softening Water in your House

MR LUKE MICHAEL GEGICK
Grade: 10 Individual project
St Vincent St Mary, Akron
Affects of Oil, Antifreeze, and Coca Cola on the Hydrogen Bonds of Water

MR RYAN D GEIGER
Grade: 09 Individual project
Archbishop Alter HS, Kettering
Dayton Area Tap Water Quality

MR KATIE SUE GEIS
Grade: 12 Individual project
Hilltop HS, West Unity
"Eco-Friendly" Vs. "NonEco-Friendly" Greywater

MS MAGGIE GEISE
Grade: 08 Team project
Hilltop HS, West Unity
Designing a Natural essential Oil Wip For Elimination of E.coli - Year 2

MS SAMANTHA GEORGE
Grade: 05 Individual project
West Elks, West Elks
Bacteria On Pets

MR MICHAEL ALAN GEIST
Grade: 06 Individual project
East ES, Athens
The Effects of Color Variation on Perceptual Ability

MS BETHANY GEORGE
Grade: 05 Individual project
St Mary Immaculate Conception, Wooster
Comparing Insulators to Work in an Upcycled Lunchbox

MR ZACH ANDREW GEORGE
Grade: 07 Individual project
St Mary Immaculate Conception, Wooster
What is the Optimal Angle for a Vertical Axis Wind Turbine’s Blades to Collect Skyscraper Downdraft

MR MASON GERMAN
Grade: 08 Individual project
Fort Jennings HS, Fort Jennings
Temperature Effect On of Steel

MR MICHAEL FANGZHOU GE
Grade: 07 Individual project
Montessori Mahoning Valley, Youngstown
The Best Method of Softening Water in your House

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West Elks, West Elks
Bacteria On Pets

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Grade: 08 Individual project
Fort Jennings HS, Fort Jennings
Temperature Effect On of Steel

MR WYATT CHARLES GERMAN
Grade: 07 Team project
Ottoville ES, Ottoville
Tire Prep On Tires

MS MALLORY GERSCHUTZ
Grade: 08 Individual project
Sacred Heart of Jesus, Wadsworth
Effects of Different Insulation Types on Heat Transfer
ROSTER OF STUDENT EXHIBITORS

MS AUBREY GERTEN
Grade: 05  Team project
Bath MS, Lima
What is the Healthiest Drinking Water?

MR GREGORY M GERTEN
Grade: 07  Individual project
Bunsold MS, Marysville
PAINTBALL - Feel the Pain

MS MELIA RENEE GIBBS
Grade: 08  Individual project
National Inventor’s Hall of Fame MS, Akron
Food Power

MS CALI GILBERT
Grade: 09  Individual project
Northeastern HS, Springfield
Will Goldfish Grow More Individually or in a School of Fish?

MR ERIC JAMES GODDARD
Grade: 10  Individual project
Global Impact STEM Academy, Springfield
How Important is the Use of Cover Crops When Trying To Prevent Erosion?

MS MACKENZIE LYNN GOLDSMITH
Grade: 08  Individual project
Bishop Fenwick, Zanesville
Which Type of Water Makes Soybeans Grow the Fastest?

MR PARKER TIMOTHY GOOD
Grade: 06  Individual project
Menlo Park Academy, Cleveland
The Enlightening Truth About Light Bulbs

MR SHREYAS GORTHY
Grade: 07  Individual project
Bunsold MS, Marysville
What Temp Shoots True?

MR DEVEN WHILLAM GRAY
Grade: 07  Individual project
Circleville MS, Circleville
Pixels & Pulse: How Do Video Games Affect Heart Rate?

MS ELLA CHRISTINE GROSS
Grade: 07  Team project
Bethel JS, Tipp City
Flexible Seating

MR JOEY GULAS
Grade: 10  Individual project
Archbishop Alter HS, Kettering
The Effect of Road Salts on Soybean Growth and Production

MR ARPITA GULATI
Grade: 10  Individual project
Archbishop Alter HS, Kettering
Beating Bacteria: the Effectiveness of Herbal Alternatives and Pharmaceuticals Compared

MR OWEN SIJIE GUO
Grade: 11  Team project
Upper Arlington HS, Upper Arlington
SERP-1 Promotes Corneal Wound Healing by Facilitating Re-Epithelialization and Inhibiting Fibrosis and Angiogenesis

MR ZICHENG GUO
Grade: 06  Individual project
Tippecanoe MS, Tipp City
The Race to Rot

MS NYNEISHIA GUPTA
Grade: 08  Individual project
Hathaway Brown, Shaker Hts
The Effect of Temperature Change of Salt Water

MS NYSHA GUPTA
Grade: 08  Individual project
Hathaway Brown, Shaker Hts
The Effect of Acid Rain on Living Organisms

MR SHREY GUPTA
Grade: 12  Individual project
Sylvania Northview HS, Sylvania
In Silico Prediction of MHC Class II Epitope of Antigenic 14-3-3ζ

MS ADDIE GURGIOLO
Grade: 06  Individual project
Heritage MS, Westerville
Ocean Acidification - is it Real?

MS CORA LILY GUTIERREZ
Grade: 05  Individual project
Tri-Village ES, New Madison
Musical Plants: The Impact of Music Type on Radish Growth

MS CARSYN KAYLENE HAGANS
Grade: 10  Individual project
Archbold HS, Archbold
Artificial Light at Night in Northwest Ohio and its Effect on Sleep Quality

MS KARA HALE
Grade: 05  Individual project
L T Ball Intermediate ES, Tipp City
The Thawing of Frozen Juice Cubes Vs. Frozen Ice Cubes

MR VINCENT HALLER
Grade: 07  Individual project
Bishop Flaget, Chillicothe
Does the White Square Improve the Accuracy of a Layup?

MR LUKE SAMUEL HAMAN
Grade: 08  Individual project
Walnut Springs MS, Westerville
Efficient Electric Motors

MR REED DANIEL HAMEY
Grade: 05  Individual project
Northwestern ES, W Salem
Does Dog See Color?

MS SYDNEY L HAMILTON
Grade: 09  Individual project
Lynchburg-Clay HS, Lynchburg
The Effect of Stratification on the Germination Rate of Milkweed

MR ALAN Y HAN
Grade: 11  Individual project
Solon HS, Solon
Improving Mobile App Quality Through Program Analysis

MS XINRUI HAN
Grade: 08  Individual project
Athens MS, Athens
Are Animals Eating Puffball To Help Them Fight Off Diseases?

MS ALINA CATHELEN HANDE
Grade: 10  Individual project
East Richland Christian School, St Clairsville
Lenz’s Law and Eddy Current Braking Effect

MR RYAN HANFORD
Grade: 10  Individual project
Global Impact STEM Academy, Springfield
An Economical Approach to an Earthquake Resistant Building

MR AVI HARI
Grade: 11  Individual project
Upper Arlington HS, Upper Arlington
The Effect of Dimethyl Sulfoxide on a Förster Resonance Energy Transfer Based Assay

MS EMILY MAUREEN HARMON
Grade: 10  Individual project
Hicksville HS, Hicksville
Best Learning Method For Young Students
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<td>MS Jasmine Harris</td>
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<td>Ms. Madee Henderson</td>
<td>06</td>
<td>Team project</td>
<td>Peebles ES, Peebles</td>
<td>How 'Bout That Iron?</td>
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<td>Mr. Isaac Herlihy</td>
<td>07</td>
<td>Individual project</td>
<td>Bishop Flaget, Chillicothe</td>
<td>Multitasking: Friend or Foe</td>
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<tr>
<td>Ms. Lyanna Hope Hernandez</td>
<td>05</td>
<td>Individual project</td>
<td>Valley Christian School, Youngstown</td>
<td>How Much Energy is in Different Types of Grass</td>
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<tr>
<td>Ms. Madison Linn Herrmann</td>
<td>12</td>
<td>Individual project</td>
<td>Lincoln HS, Galana</td>
<td>An Investigation to Improve the Flight Efficiency of Model Gliders</td>
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<td>Mr. Schafer Heyman</td>
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<td>Individual project</td>
<td>Maumee Valley Country Day, Toledo</td>
<td>Sunny Side Up</td>
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<tr>
<td>Ms. Hala Hinch</td>
<td>06</td>
<td>Team project</td>
<td>Toledo Islamic Academy, Sylvania</td>
<td>Which Compost Material Works Best for Growing Soybeans?</td>
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<tr>
<td>Mr. Jad Hinch</td>
<td>06</td>
<td>Team project</td>
<td>Toledo Islamic Academy, Sylvania</td>
<td>Which Compost Material Works Best for Growing Soybeans?</td>
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<tr>
<td>Mr. Mazen Hinch</td>
<td>07</td>
<td>Team project</td>
<td>Toledo Islamic Academy, Sylvania</td>
<td>Homemade Waterwheel as a Source of Green Energy</td>
</tr>
<tr>
<td>Mr. Corbin R Hite</td>
<td>12</td>
<td>Individual project</td>
<td>Tiffin</td>
<td>The Quantification of the S Stereosomer and Racemic Mixture of Ibuprofen in Generic and Name Brand Pills Through X-ray Diffractometry</td>
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<tr>
<td>Ms. Clara Ann Hoffert</td>
<td>10</td>
<td>Individual project</td>
<td>Firestone HS, Akron</td>
<td>Banishing Bacteria In Your Beauty Blender</td>
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<tr>
<td>Ms. Emma Frances Hoffman</td>
<td>08</td>
<td>Individual project</td>
<td>Glandorf ES, Glandorf</td>
<td>Does the 20-20-20 Rule Counteract the Impact of Technology on a Person’s Visual Acuity?</td>
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<tr>
<td>Ms. Abby Marie Hohlbein</td>
<td>07</td>
<td>Team project</td>
<td>Ottoville ES, Ottoville</td>
<td>Tire Prep On Tires</td>
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<tr>
<td>Ms. Natalie Hohman</td>
<td>09</td>
<td>Individual project</td>
<td>Rutherford B Hayes HS, Delaware</td>
<td>Does the Number of Freeze-Thaw Cycles Affect the Germination Rate of Asclepias syriaca?</td>
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<td>Ms. Kaitlyn Hohmann</td>
<td>07</td>
<td>Individual project</td>
<td>St Brendan, N Olmsted</td>
<td>Which Fabric Exhibits the Brightest Color When Dyed?</td>
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<tr>
<td>Ms. Trista Nicole Hollinger</td>
<td>11</td>
<td>Individual project</td>
<td>Arcanum HS, Arcanum</td>
<td>Like What You Hear?</td>
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<tr>
<td>Mr. Alvin Roger Homier</td>
<td>09</td>
<td>Individual project</td>
<td>Miller City - New Cleveland HS, Miller City</td>
<td>Mig Vs. SMAW Welding</td>
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<tr>
<td>Ms. Savanna Briar Hooker</td>
<td>07</td>
<td>Individual project</td>
<td>Walnut Springs MS, Westerville</td>
<td>Grass’ Biomass</td>
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<tr>
<td>Ms. Sydney Alessandra Hooper</td>
<td>08</td>
<td>Team project</td>
<td>Fairfield Local MS, Leesburg</td>
<td>Brain Dominance Vs. Personality Correlation</td>
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<tr>
<td>Mr. Landon Charles Horstman</td>
<td>07</td>
<td>Team project</td>
<td>Ottoville ES, Ottoville</td>
<td>Cups and Water Temperature</td>
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<tr>
<td>Ms. Laura Grace Hovorka</td>
<td>06</td>
<td>Individual project</td>
<td>St Paul, Salem</td>
<td>Do Cone Cells Recover at the Same Rate for Afterimages?</td>
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<tr>
<td>Mr. Charlie Joseph Howe</td>
<td>08</td>
<td>Individual project</td>
<td>St Patrick Of Heatherdowns, Toledo</td>
<td>Sound In Space</td>
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<tr>
<td>Mr. Justin Jiecheng Huang</td>
<td>11</td>
<td>Individual project</td>
<td>William Mason HS, Mason</td>
<td>Preparation of Reusable PVA-Nano TiO2 Foam for Wastewater Treatment</td>
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<tr>
<td>Ms. Summer Hudak</td>
<td>08</td>
<td>Individual project</td>
<td>St Helen, Newbury</td>
<td>Getting the Good Out of Yarrow</td>
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<tr>
<td>Ms. Lizzie Hueksmp</td>
<td>05</td>
<td>Individual project</td>
<td>New Albany Intermediate School, New Albany</td>
<td>Candy to Dye For</td>
</tr>
</tbody>
</table>
ROSTER OF STUDENT EXHIBITORS

MR Landon Hunt
Grade: 11 Individual project
Columbia HS, Columbia Station
Evaluating Hand Sanitizer: Why the 99.99% Isn’t Good Enough

MR William Hunt
Grade: 09 Individual project
Columbia HS, Columbia Station
Density

Ms. Andrew Hutter
Grade: 07 Individual project
St. Michael, Independence
Which Combination of Toothpaste and Mouthwash Leaves the Least Amount of Plaque Behind?

Ms. McKenzie S. Jimmar
Grade: 07 Individual project
Mother Teresa Catholic, Liberty Twp
What Type of Fertilizer Works Best for Plants?

Ms. Sabine Elizabeth Johns
Grade: 08 Team project
Walnut Hills HS, Cincinnati
The Impact of Temperature, Storage, and Bread Type on Mold Growth

Ms. Diana Dorthy Johnson
Grade: 11 Individual project
Milton-Union HS, W. Milton
Effect of Cell Phones on Reaction Time

Ms. Arisha Johri
Grade: 05 Individual project
New Albany Intermediate School, New Albany
Which design of Bridges is the Strongest

Ms. Ben Jones
Grade: 07 Individual project
Bunsofd MS, Marysville
Don’t Throw in the Towel!

Mr. Brandon Scott Jones
Grade: 09 Individual project
Lehman Catholic HS, Sidney
The Effects of UV Light on Bacteriorhodopsin Production in H.NRC-1

Ms. Kara Elizabeth Jones
Grade: 07 Individual project
Central Christian, Kidron
Do Mycorrhizae Help Your Plants Grow?

Ms. Lyndsey M. Jones
Grade: 12 Individual project
Lehman Catholic HS, Sidney
Can Mushrooms Filter Cigarette Runoff to Allow Soybean Growth?

Ms. Soham Joshi
Grade: 10 Team project
Columbus Academy, Gahanna
S.E.N.S.E - Specialized Easy-to-use Novel Sign Language Expert

Mr. Brent Ju
Grade: 11 Team project
Upper Arlington HS, Upper Arlington
SERP-1 Promotes Corneal Wound Healing by Facilitating Re-Epithelialization and Inhibiting Fibrosis and Angiogenesis

Ms. Natalie Junders
Grade: 08 Individual project
St. Francis DeSales, Newark
Strength of Eggs

Mr. Anthony David Kahle
Grade: 08 Individual project
Glandorf ES, Glandorf
Do Hydroponically Grown Lettuce Plants Grow Faster and Larger Than Soil-Grown Lettuce Plants?

Ms. Aditya Kalahasti
Grade: 10 Individual project
Solon HS, Solon
Analyzing Patterns of Gene Expression in Inflamed Microglia Stimulated With a Pro-Inflammatory Molecule (TNF Alpha)

Mr. Nathan Robert Kamphaus
Grade: 08 Individual project
St Anthony of Padua, Columbus Grove
How do Plates and Camber Affect Joints on a Warren Truss Bridge?

Ms. Anish Reddy Kandi
Grade: 07 Individual project
St. Gertrude, Cincinnati
Liar, Liar

Mr. Sohum Kapadia
Grade: 11 Individual project
The University School, Chagrin Falls
Dimensions and Geometry of the Mitral and Tricuspid Valves in Normal and Diseased States

Ms. Vishwum Kapadia
Grade: 07 Individual project
The University School, Chagrin Falls
The Taste of Healthy Food Choices

Ms. Bela Amol Karajagi
Grade: 10 Individual project
William Mason HS, Mason
AQUASmart: An AI-Powered Farm Advisor Tool

Mr. Vishwesh Kasiraman
Grade: 08 Team project
Oleotagy Shanahan MS, Lewis Center
The Effect of Cooling Systems on A CPU

Mr. Rohit Kumar Kataria
Grade: 12 Individual project
Wheelerburg HS, Wheelersburg
Assessing the Correlation Between Extroversion and Short-Term Memory in High School Students

Ms. Serena Rani Kataria
Grade: 10 Individual project
Wheelerburg HS, Wheelersburg
The Correlation Between Rheumatoid Arthritis Disease Activity and Egg Consumption
<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Type</th>
<th>School</th>
<th>Project Title</th>
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<tbody>
<tr>
<td>MS SAHANA KATTA</td>
<td>06</td>
<td>Individual project</td>
<td>Big Walnut Intermediate, Sunbury</td>
<td>Race to Relief</td>
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<tr>
<td>MR SUHAAS KATTA</td>
<td>05</td>
<td>Individual project</td>
<td>Big Walnut Intermediate, Sunbury</td>
<td>Write Off: Which Brand of #2 Pencil Lasts the Longest When Sharpened Using an Electric Pencil Sharpener?</td>
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<td>MS TAYLOR DANIELLE KAUFFMANN</td>
<td>12</td>
<td>Individual project</td>
<td>Anna HS, Anna</td>
<td>Particulate Size of Electronic Cigarettes</td>
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<td>MS KATELYN ROSE KAUFMAN</td>
<td>08</td>
<td>Individual project</td>
<td>Glandoor HS, Glandoor</td>
<td>What Hand Product Kills the Most Bacteria in Dirt?</td>
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<tr>
<td>MR ADAM KAUH</td>
<td>07</td>
<td>Team project</td>
<td>Walnut Springs MS, Westerville</td>
<td>The Miracle Formula</td>
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<td>MS BRIGID A KEATING</td>
<td>08</td>
<td>Individual project</td>
<td>St Paul, Westerville</td>
<td>The Effect of Container Type on Microplastics Leaching Into Food</td>
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<td>MS WILLOW KENNEDA</td>
<td>12</td>
<td>Individual project</td>
<td>Williamsburg HS, Williamsburg</td>
<td>Generation X Chemicals: Impacts on Freshwater in Ohio</td>
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<td>MS KATHERINE MARY KENT</td>
<td>07</td>
<td>Individual project</td>
<td>St Anselm, Chesterland</td>
<td>Hush Little Baby; Evaluation of EMF Radiation In The Nursery</td>
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<tr>
<td>MR DESTYNN A KEUCHEL</td>
<td>10</td>
<td>Individual project</td>
<td>Hawken School, Gates Mills</td>
<td>Improving the Durability of a Solar Soil</td>
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<td>MR ADAM KHAN</td>
<td>08</td>
<td>Individual project</td>
<td>Stanton MS, Kent</td>
<td>Model Rocket Nose Cone Aerodynamics</td>
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<td>MS ISHAN KHARE</td>
<td>11</td>
<td>Individual project</td>
<td>Ottawa Hills Junior/Senior HS, Ottawa Hills</td>
<td>Sodium pnictogen chalcogenides for Photovoltaic and Thermoelectric Renewable Energy Generation</td>
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<td>MS AUTUMN FAITH KING</td>
<td>07</td>
<td>Individual project</td>
<td>St Edward, Ashland</td>
<td>How Does Speed Affect Pitch?: The Doppler Effect</td>
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<td>MS LANEY C KING</td>
<td>10</td>
<td>Individual project</td>
<td>St Vincent St Mary, Akron</td>
<td>The Effect of Surface Chemistry on the Wet Self-Cleaning Ability of Gecko-Inspired Synthetic Adhesives</td>
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<td>MS AUDREY KINNINGER</td>
<td>07</td>
<td>Individual project</td>
<td>Tippecanoe MS, Tipp City</td>
<td>Baby Biology</td>
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<td>MS REAGHAN ALEXANDRA WIWALA</td>
<td>05</td>
<td>Individual project</td>
<td>New Albany Intermediate School, New Albany</td>
<td>Liquids and Rusting: The Effects of pH on Steel Wool</td>
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<td>MS HOLLYN KLOPFENSTEIN</td>
<td>08</td>
<td>Team project</td>
<td>Pettisville HS, Pettisville</td>
<td>How Soil Type Affects Sunflower Growth</td>
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<td>MS BRAHAN JOSEPH KNIPPEN</td>
<td>07</td>
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<td>Fort Jennings HS, Fort Jennings</td>
<td>Moldy Bread</td>
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<td>MS COLE LEE KNIPPEN</td>
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<td>Ottoville ES, Ottoville</td>
<td>An &quot;Iron&quot;ically Good Breakfast</td>
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<td>MS ALLISON E KOHUS</td>
<td>11</td>
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<td>Olentangy Shanahan MS, Lewis Center</td>
<td>How do Different Environments Affect Bones? What Environment Will Decompose Bones the Most?</td>
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<td>MS ALLISON E KOHUS</td>
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<td>Lynchburg-Clay HS, Lynchburg</td>
<td>The Effect of Silver Nanoparticles on Daphnia magna</td>
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<td>MS WILLIAM KOHUT</td>
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<td>Olentangy Shanahan MS, Lewis Center</td>
<td>The Effect of Hydrochloric Acid on the Decomposition Rate of Hydrogen Peroxide</td>
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<td>MS SREEJA KOMMERA</td>
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<td>Olentangy Shanahan MS, Lewis Center</td>
<td>Oil Outburst</td>
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<td>MS JACQUELYN CLAIRE KOST</td>
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<td>Terrace Park ES, Terrace Park</td>
<td>The Dicamba Disaster</td>
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<td>MS SHREYA VASANTH KOTHURU</td>
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<td>Mason MS, Mason</td>
<td>Herb Growth with Acids and Bases</td>
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<td>MR ZOLTAN ERIK KOTREBAI</td>
<td>08</td>
<td>Individual project</td>
<td>St Paschal Baylon, Highland Heights</td>
<td>Energy Efficiency of LED Lighting (Investigating the Reasons for LED Light Source Efficiency Over Incandescent Light Sources and Calculating the Savings from Switching to an all LED Household)</td>
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<td>MR ROHAN SHEKAR KRISHNAMURTI</td>
<td>11</td>
<td>Individual project</td>
<td>The University School, Chagrin Falls</td>
<td>Evaluating Clinical and Quantitative Imaging Variables for Association with Response to Therapy for Crohn's Disease</td>
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<td>MS ALEXANDER J. KROL</td>
<td>08</td>
<td>Individual project</td>
<td>Walnut Hills HS, Cincinnati</td>
<td>The Capture and Sequestration of Carbon Dioxide from a Closed System: How Much CO2 is Absorbed per Gram of Soda-Lime?</td>
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<td>MS EMILY ANN KRUSE</td>
<td>11</td>
<td>Individual project</td>
<td>Bloom Carroll HS, Carroll</td>
<td>The Effects of Gibberellic Acid on Glycine max During Drought</td>
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<td>MS GRACE ELIZABETH KRUSE</td>
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<td>Bloom Carroll HS, Carroll</td>
<td>The Effects of Gibberellic Acid on Glycine max During Drought</td>
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<td>MS ADITYA KUMARI</td>
<td>11</td>
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<td>Olentangy HS, Lewis Center</td>
<td>Investigating the Role of Thrombospondin-2 in Extracellular Matrix Formation and Fibroblast Migration in Diabetes</td>
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<td>MS YARYNA KURDOBA</td>
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<td>Individual project</td>
<td>Beaumont School, Cleveland Hts</td>
<td>The Effect of Twitter Sentiment on Stock Market Prices</td>
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<td>MS MARY LU LACEY</td>
<td>07</td>
<td>Individual project</td>
<td>St Gertrude, Cincinnati</td>
<td>A Parabolus Effect on Wifi</td>
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<td>MS SOPHIA MAE LAIRD</td>
<td>09</td>
<td>Individual project</td>
<td>Global Impact STEM Academy, Springfield</td>
<td>What's In Your Yogurt?</td>
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</table>
ROSTER OF STUDENT EXHIBITORS

MS AVERI LANE
Grade: 10 Individual project
Benjamin Logan HS, Bellefontaine
The Effect of Growth Regulators on Tomato Plants

MS JOCELYN KRISTINE LANGHALS
Grade: 07 Individual project
Ottoville HS, Ottoville
Different Types of Deer Lick Vs Amount of Consumption

MS KEELIE ANN LANGHALS
Grade: 07 Individual project
St Anthony of Padua, Columbus Grove
Do Radon Gas Levels Vary in a 5 Mile Radius?

MS MADELINE LARRISON
Grade: 06 Individual project
Warsaw ES, Warsaw
What is in the Air Around You?

MS BROOKE ANNE LAUER
Grade: 12 Individual project
Glen Oak HS, Canton
L-beta-N-methylamino-L-alanine (BM-MA)'s Influence on Amyotrophic Lateral Sclerosis, Parkinson's Disease, and Alzheimer's Disease

MS AUBREY GRACE LAWSON
Grade: 08 Individual project
Regina Coeli, Toledo
How Much Energy Can Solar Panels Absorb from Colored Light?

MS JOSCELYN PEARL LAYMAN
Grade: 08 Individual project
Hilltop HS, West Unity
How Does Nitrogen Fixing Bacteria Affect Soybean Growth?

MR STEELE RUSSELL LEEP
Grade: 09 Individual project
Fairland HS, Proctorville
Memory in Motion

MS KYLEE LEHMAN
Grade: 08 Individual project
Glandorf ES, Glandorf
How Does Color Affect Visual Acuity?

MS ALICE GRACE LENTZ
Grade: 09 Individual project
Put-In-Bay HS, Put-In-Bay
The Effects of Salinity on GMO Arabidopsis

MS HANNAH R LENTZ
Grade: 12 Individual project
Put-In-Bay HS, Put-In-Bay
Carbon Dioxide Production from the Fermentation Process of Various Feedstocks

MS ERICA LESLIE
Grade: 07 Individual project
St Francis DeSales, Akron
Does Music Affect Your Blood Pressure

MS OLIVIA KRISTEN LEWIS
Grade: 07 Individual project
St Helen, Newbury
Think Think Think

MR BRYCEN LISH
Grade: 05 Team project
New Albany Intermediate School, New Albany
Baseball Bats: Wood Vs. Aluminum

MS HELEN SIJIA LIU
Grade: 07 Individual project
Athens MS, Athens
Active Noise Cancellation and the Precedence Effect

MS LISA SIYA LIU
Grade: 10 Individual project
Athens HS, The Plains
Distinguishing Lines Produced by Images with Different Conversion Orders Through Sound Visualizations

MS CLAIRE LOEFFLER
Grade: 09 Individual project
Bloom Carroll HS, Carroll
Enhancing Biofuel Emissions

MS EVANGELINA F LOUIS
Grade: 12 Individual project
Sylvania Northview HS, Sylvania
The Ketone Body

MS AUDREY LU
Grade: 07 Individual project
Willard Grizzell MS, Dublin
Cleaning up Ocean Oil Spills using Nanotechnology

MR CARSON MACKEY
Grade: 09 Team project
Ottawa Hills Junior/Senior HS, Ottawa Hills
Running App Accuracy

MR SAM MACKRIS
Grade: 07 Individual project
Home Schooled - District 11, Dihedral Angles

MR NOEL E MADDOX
Grade: 07 Individual project
St Raphael, Bay Village
Crazy Crystals: The Effect of Contaminants on Crystal Growth

MS UMAYNA MAGSI
Grade: 09 Individual project
Toledo Islamic Academy, Sylvania
Do People Self-Deceive Themselves About their Heart Health?

MS MARYN ANNE MAHONEY
Grade: 07 Individual project
Mother Teresa Catholic, Liberty Twp
Disassemble to Disinfect

MR RAAGHAV MALIK
Grade: 10 Team project
Columbus Academy, Gahanna
S.E.N.S.E - Specialized Easy-to-use Novel Sign language Expert

MR REVANTH MANCHINEELLA
Grade: 08 Team project
Walnut Hills HS, Cincinnati
How Different Types of Water Purification Methods Affect the Lead Concentration in Water

MR THOMAS ANTHONY MANSFIELD
Grade: 10 Individual project
West Geauga HS, Chesterland
Food Preparation Techniques to Prevent Eye Irritation from Onion

MS ELLA MARCEWILLI
Grade: 07 Individual project
Walnut Springs MS, Westerville
Is your Cutting Board Making you Sick?

MR ANTHONY MARINO
Grade: 08 Individual project
St Mary, Delaware
Which Method Cools Pop Faster?

MR AIDAN PETER MARKEY
Grade: 08 Individual project
Holy Family, Poland
From Contaminated To Clean

MS EMMA KATRIN MARL
Grade: 05 Individual project
East Richland Christian School, St Clairsville
The Effects of Temperature on the Viscosity of Oil

MS LORELEI GRACE MARTIN
Grade: 10 Individual project
Minford HS, Minford
Correlation Between Salt Bridge and Microbial Fuel Cell Efficiency

MS MILANA MARTIN
Grade: 07 Individual project
Miller South Visual&Performing Arts, Akron
How Do Different Fertilizers Affect the Growth Rate of Tomato Plants

MS RACHEL KATHRYN MARTIN
Grade: 12 Individual project
Mentor HS, Mentor
Zoonotic Disease Comprehension: A Comparative Knowledge Assessment of 4-H Members and Non-Members

MR VAUGHN WILLIAM MASON
Grade: 08 Individual project
Royal Redeemer Lutheran, North Royalton
Garbage Run 2.0

MR LAYTON MASSIE
Grade: 06 Individual project
Conesville ES, Conesville

The Ohio Academy of Science
MR ANTHONY LOUIS MASSO-RIVETTI  
Grade: 12  Individual project  
Greenville Sr HS, Greenville  
*Using Taylor Polynomials to Approximate the Path of Least Time*

MR ETHAN MATA  
Grade: 08  Individual project  
Bishop Leibold E & W Campus, Dayton  
*Snazzy Strings*

MR SAMUEL MATHER  
Grade: 05  Individual project  
Menlo Park Academy, Cleveland  
*Mini-Burner*

MR NATHANIEL KEVIN MATTHEW  
Grade: 10  Individual project  
Dayton Christian School, Miamisburg  
*Mulch Madness*

MR CARSON MAUTER  
Grade: 07  Individual project  
Genoa MS, Westerville  
*Hydroponic Gardening*

MS ABIGAIL I MAY  
Grade: 11  Individual project  
St Vincent St Mary, Akron  
*The Impact of Nitrogen Inclusive Fertilizers on Glycine max and Water Runoff*

MR NICHOLAS JEFFREY MAY  
Grade: 10  Individual project  
St Vincent St Mary, Akron  
*Chromatography Using Various Solvents*

MR ELI MCCARTHY  
Grade: 07  Individual project  
Athens MS, Athens  
*Can Corn and Soybeans be Used to Treat Winter Roads?*

MR JAKE MCCARTHY  
Grade: 10  Individual project  
Athens MS, Athens  
*The Effects of the EAB on White, Green, and Blue Ash*

MR WILLIAM PAUL MCCLIMON  
Grade: 05  Individual project  
New Albany Intermediate School, New Albany  
*What Age Group Has the Best Reaction Time?*

MS MARINA MCCREARY  
Grade: 08  Individual project  
Kilbourne MS, Worthington  
*The Effects of Different Cooking Methods on the Vitamin Content of Produce*

MR BRIGHAM MCDANIEL  
Grade: 07  Individual project  
Bishop Flaget, Chillicothe  
*Sense of Touch in Teens*

MR ALEXANDRU MCELHANEY  
Grade: 07  Individual project  
Valley Christian School, Youngstown  
*It's Micro Power!*

MS ANNIE KAY MCGILL  
Grade: 08  Individual project  
St Mary, Lancaster  
*The Effect of Chemical Lightening on the Tensile Strength of Human Hair*

MS KENNEDY MCGILLIVARY  
Grade: 08  Individual project  
Bishop Leibold E & W Campus, Dayton  
*Go Go Bananas*

MR RYAN MCGINNIS  
Grade: 10  Individual project  
West Geauga HS, Chesterland  
*Pepper Pungency in Relation to pH*

MR AIDEN MCNAMARA  
Grade: 07  Individual project  
St Rita, Solon  
*It's a Little Windy in Here: A Study of Wind Turbine Blades*

MR BRENDAN JAMES MCPHERON  
Grade: 08  Individual project  
St Columban, Loveland  
*Tsunami Defense Strategies*

MS CLAIRE MCNEILL  
Grade: 08  Individual project  
Geneva HS, Geneva  
*A Study of the Effect of Temperature, Light and pH on Escherichia Coli Growth*

MS KORTNEE MICKLE  
Grade: 06  Individual project  
Keene ES, Keene  
*Bacteria Growth*

MR ABRAM PHILIP MILLER  
Grade: 05  Individual project  
East Richland Christian School, St Clairs-ville  
*Exploring the Archimedes Principle*

MS ALAINA CRISTINE METZLER  
Grade: 11  Individual project  
Sunrise Academy, Hilliard  
*Bio-inspired & Smart Blade Designs for More Efficient & Resilient Small Wind Turbines*

MS LAUREN ELIZABETH MENKE  
Grade: 11  Individual project  
Versailles HS, Versailles  
*Biorefining Soybean Stover using Tenebrio molitor*

MR ANAS M MEREB  
Grade: 08  Individual project  
St Raphael, Bay Village  
*Effectiveness of Surgical Scrubs*

MR ADITYA MEHTA  
Grade: 07  Team project  
Henry Karrer MS, Dublin  
*The Analysis of Rainwater Vs. Tap Water on the Growth of Soybeans*

MR SADHIL MEHTA  
Grade: 07  Individual project  
Tippecanoe MS, Tipp City  
*Finding the Best Non-electric Alternative Method of Refrigeration*

MS HAASINI MENDU  
Grade: 07  Individual project  
Mason MS, Mason  
*TremorSense: Parkinsons Disease Tremor Monitor*

MR CARTER EDWARD MENEGAY  
Grade: 07  Individual project  
St Canton MS, E Canton  
*Tech Vs. Text*

MR COOPER MENEGHETTI  
Grade: 08  Individual project  
St Raphael, Bay Village  
*Fueling the Future: an Examination into the Efficiency of Biofuels*

MR ANAS M MEREB  
Grade: 08  Individual project  
St Raphael, Bay Village  
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<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Project Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS GRACE ELIZABETH MOON</td>
<td>06</td>
<td>Individual project, Bloom Carroll HS, Carroll, Getting[...](Effect of Temperature on the Motility of Bull Sperm)</td>
</tr>
<tr>
<td>MS MADDIE KAYEMARIE MOORE</td>
<td>08</td>
<td>Individual project, St Vincent St Mary, Akron, The Effect of Toxic Soil on Daphnia Magna</td>
</tr>
<tr>
<td>MS AMELIA R MOLL</td>
<td>10</td>
<td>Individual project, St Mary Central, Martins Ferry, Ocean Acidification Effect on Coral</td>
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<tr>
<td>MS DELANEY RAE MOORE</td>
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<td>Individual project, Bloom Carroll HS, Carroll, Effect of Temperature and Time on the Motility of Bull Sperm</td>
</tr>
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<td>MS MADIE KAYEMARIE MOORE</td>
<td>07</td>
<td>Team project, West Elkton ES, W Elkton, Bacteria On Pets</td>
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<tr>
<td>MS TIFFANY MOORE</td>
<td>07</td>
<td>Team project, Bethel JS, Tipp City, Flexible Seating</td>
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<tr>
<td>MR BRYN PATTERSON MORGAN</td>
<td>09</td>
<td>Individual project, West Geauga HS, Chesterland, Improved Spatial Positioning System 2</td>
</tr>
<tr>
<td>MS KEYURU PERISHA MORGAN</td>
<td>06</td>
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<tr>
<td>MS GRACE TERRIANNE MORICCA</td>
<td>12</td>
<td>Individual project, Eastland Career Center, Groveport, Using Dried Sphagnum Moss to Decrease the Amount of E. coli Bacteria in Nutrient Broth</td>
</tr>
<tr>
<td>MS BRELYNN GRACE MORRIS</td>
<td>07</td>
<td>Individual project, Bloom Carroll MS, Carroll, Got Gas? Making Carbon Dioxide with Different Sugars</td>
</tr>
<tr>
<td>MR NATHAN MU</td>
<td>10</td>
<td>Individual project, The University School, Chagrin Falls, Developing EDTA-polymerized Cyclo-dextrin as a Drug-Delivering Polymer For Use in a Coronary Drug-Eluting Stent Coating</td>
</tr>
<tr>
<td>MR ZEYAD WALED MUHANNA</td>
<td>05</td>
<td>Individual project, Sunrise Academy, Hilliard, Germs Everywhere</td>
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<tr>
<td>MR LANDON JO MUHLENKAMP</td>
<td>11</td>
<td>Individual project, Greenville Sr HS, Greenville, Versatility of Green Concrete</td>
</tr>
<tr>
<td>MR RAIVATH MUKHERJEE</td>
<td>08</td>
<td>Individual project, Mason MS, Mason, Effect of Fertilizers on Algae</td>
</tr>
<tr>
<td>MS ADDISON CLAIRE MULLINS</td>
<td>07</td>
<td>Individual project, Wheelersburg MS, Wheelersburg, Straw Wars Part 2</td>
</tr>
<tr>
<td>MR MATTHEW MUNTEAN</td>
<td>07</td>
<td>Individual project, Incarnation Word Academy, Parma Hts, Which Drink Affects Your Teeth the Most Negatively?</td>
</tr>
<tr>
<td>MS MARGARET ANN MURPHY</td>
<td>07</td>
<td>Individual project, St Mary, Lancaster, Let's Levitate with Ultrasonic Levitation</td>
</tr>
<tr>
<td>MS MAGGIE RAIN MURRAY</td>
<td>07</td>
<td>Individual project, Columbia MS, Columbia Station, Doggie Dominance</td>
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<tr>
<td>MR HRSUI MUSKULA</td>
<td>11</td>
<td>Individual project, Dublin Jerome HS, Dublin, Clinical Significance of Cellphone Use on Adolescent Cervical Spine Anatomy</td>
</tr>
<tr>
<td>MS SHARANYA NAIR</td>
<td>08</td>
<td>Team project, Mason MS, Mason, Predicting Malignancy and Relevance of Characteristics in Breast Cancer - A Machine Learning Approach</td>
</tr>
<tr>
<td>MR SUJAY S NALLA</td>
<td>07</td>
<td>Individual project, Incarnate Word Academy, Parma Hts, Help Improve Your Shooting Percentage?</td>
</tr>
<tr>
<td>MR KRISHNA NANDAKUMAR</td>
<td>09</td>
<td>Individual project, Olentangy HS, Lewis Center, Could Nanosilver In Consumer Products Affect Living Organisms?</td>
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<tr>
<td>MR LUKE NEDVED</td>
<td>07</td>
<td>Individual project, St Helen, Newbury, Foiling Oil</td>
</tr>
<tr>
<td>MR CAMERON NEIDHARD</td>
<td>11</td>
<td>Individual project, Carroll HS, Dayton, Developing an Application to Measure Stroop Interference in Bilinguals</td>
</tr>
<tr>
<td>MS DEVI DHEEKSHITA NELAKURTI</td>
<td>12</td>
<td>Individual project, Olentangy HS, Lewis Center, Applying Artificial Intelligence Approaches to Dual-Energy CT Post-Processing to Augment Visualization of Intraspinal Contents</td>
</tr>
<tr>
<td>MS ANDREA KRISTINA NEMECKAY</td>
<td>12</td>
<td>Individual project, Mentor HS, Mentor, Impact of Weekly Hatha Yoga on Student Behavior</td>
</tr>
</tbody>
</table>
ROSTER OF STUDENT EXHIBITORS

**MS ELENA NEMECKAY**  
Grade: 12 Individual project  
Mentor HS, Mentor  
The Dermatological Implications of Athletic Compression Attire

**MR JOHN GORDON ODDO**  
Grade: 12 Individual project  
Mentor HS, Mentor  
Finding a Relationship Between the Method of Warm-up and the Physical Performance of High School Athletes

**MR JOHN SCOTT PAPE**  
Grade: 11 Individual project  
The University School, Chagrin Falls  
Hearing Protein 1, 2, and 3 Phenotype Characterization in Zebratfish

**MR SERGIO ENRIQUE NGUYEN**  
Grade: 08 Team project  
Dayton Regional STEM School, Kettering  
Are You Really Green?

**MS KALEN DREW OFFUTT**  
Grade: 06 Individual project  
St Michael Consolidated, Ripley  
Having Trouble Growing Plants? Carbon Dioxide is at Your Side!

**MS DEEPTA PARAMASAMY**  
Grade: 12 Individual project  
Ottawa Hills Junior/Senior HS, Ottawa Hills  
Investigating A Real Life Symbiotic Anomaly: Siderophore Producing Bacteria and Algae in Alkaline Environments

**MR DAVID BARRINGTON NOEL**  
Grade: 10 Individual project  
Dayton Regional STEM School, Kettering  
How Does Weather Affect Fishing

**MS MORGAN GRACE NORDEN**  
Grade: 12 Individual project  
Hilltop HS, West Unity  
Special Needs Children Responses to Sensory Objects Compared to Typical Children - Year 2

**MS MADISON GRACE O'LEARY**  
Grade: 08 Individual project  
Holy Angels, Sidney  
Is Your iPhone Secretly Listening?

**MR JP PRASAD NORTON**  
Grade: 07 Individual project  
St Agatha, Columbus  
Moving Vs Standing

**MS JOSEPHINE E. O'MALLEY**  
Grade: 05 Individual project  
Shaw ES, Beavercreek  
Monarch Milkweed Preference

**MR JOSHUA DANIEL ORLETT**  
Grade: 11 Individual project  
Carroll HS, Dayton  
Effects of Various Aggregates on Concrete Strength

**MS TUSCANI MILI ORRIS**  
Grade: 08 Individual project  
St Helen, Newbury  
Peppermint and Testing

**MR KAILEN DREW OFFUTT**  
Grade: 10 Individual project  
Dayton Regional STEM School, Kettering  
A Sweet Ride: Whipped Cream Canister Escape Velocity

**MS RENA OUYYANG**  
Grade: 11 Individual project  
Rutherford B Hayes HS, Delaware  
Chlorinated Chemiluminescence: A Study of the Light Produced by Luminol and Sodium Hypochlorite

**MS EMMA KATHRIN PADDAGS**  
Grade: 11 Individual project  
St Edward, Ashland  
Analysis of Gene Expression Signatures for Predicting Chemosensitivity in Breast Cancer Patients

**MS KATRIN MARIE PARKER**  
Grade: 07 Individual project  
Ashland MS, Ashland  
Gene Mutations: How we are Affected

**MR JOONWOO PARK**  
Grade: 08 Individual project  
Athens MS, Athens  
Utilizing Food Waste to Promote Algae Biofuel Production

**MS KAVITA PARIKH**  
Grade: 11 Individual project  
Ottawa Hills Junior/Senior HS, Ottawa Hills  
The Quest to Conquer Thermal Expansion: Non-hydrolytic Sol-gel Synthesis and Characterization of Al2-xInxWO12 Negative Thermal Expansion Materials

**MR RILU PATRICK OBERG**  
Grade: 11 Individual project  
Dayton Regional STEM School, Kettering  
A Sweet Ride: Whipped Cream Canister Escape Velocity

**MR KADEN JAY OBRINGER**  
Grade: 08 Team project  
Columbian HS, Tiffin  
Solar Vs. Wind Energy

**MS KAVITA PARIKH**  
Grade: 07 Individual project  
Ashland MS, Ashland  
Gene Mutations: How we are Affected

**MS SARAH LOUISE OCHOCKI**  
Grade: 12 Individual project  
Mentor HS, Mentor  
Expressive Vocabulary Acquisition in Students with Neurodevelopmental Disorders

**MS KAYLA RAE O’DANIEL**  
Grade: 12 Individual project  
Arcanum HS, Arcanum  
What Factor in Carpet Cleaners Removes Stains the Best?
ROSTER OF STUDENT EXHIBITORS

MS CHRISTIANA PAUL
Grade: 07  Individual project
St Anselm, Chesterland
A Leg Guider to Help Equestrians
Maintain Balance More Effectively

MS ALLISON PAYTON
Grade: 06  Team project
Zane Trace MS, Chillicothe
Cash or Credit

MR ANDREW PAYTON
Grade: 06  Team project
Zane Trace MS, Chillicothe
Cash or Credit

MR SIMON CHARLES PAZZO
Grade: 09  Team project
Anderson HS, Cincinnati
The CRISPR-Cas9 Defense System

MS DIYA CAROLINE PERCY
Grade: 08  Individual project
Incarnation, Centerville
Waste Not Want Not

MS MACKENZIE GRACE PERRY
Grade: 11  Individual project
Sylvania Southview HS, Sylvania
Chemotaxis of Borrelia burgdorferi in a Mouse Model

MS RUTH GRACE PERRY
Grade: 06  Individual project
St Patrick, Troy
How Does Feed Type Effect Swine Growth Rate?

MS ABIGAIL PETERSON
Grade: 06  Team project
Valley Christian School, Youngstown
Tarnished Coins

MS AIDALISE PETERSON
Grade: 07  Team project
Valley Christian School, Youngstown
Tarnished Coins

MR AIDAN RICHARD PETROSKI
Grade: 05  Individual project
Charles Huber ES, Huber Hts
Sunsational Protection

MR BENJAMIN DAVID PETTY
Grade: 11  Individual project
Bloom Carroll HS, Carroll
The Effect of Deicers on the Salinity of Water

MS HAYLEY MCKENNA PHILLIPS
Grade: 06  Individual project
Madison Christian School, Groveport
Bringing Backyard Birdies Back

MS EMILY MAE PLAGEMAN
Grade: 09  Individual project
Bloom Carroll HS, Carroll
Transcriptional Activation of a Cataract-Associated Gene

MR MATTHEW STEVEN PLAGEMAN
Grade: 07  Individual project
Bloom Carroll MS, Carroll
Testing the Mechanisms of Bilobed Contact Binary Formation

MR LUKAS RALPH PLEIMAN
Grade: 07  Individual project
Ascension, Kettering
Germ!

MR CARLO ROBERT POLISENA
Grade: 08  Individual project
St Francis Of Assisi, Gates Mills
Examining the Growth-Inhibiting Properties of the Antihistamine Loratadine Against Antibiotic Resistant Staphylococcus Bacteria

MR KUNAL PONKSHI
Grade: 10  Individual project
William Mason HS, Mason
An Investigation of the Relative Effects of Various Comorbidities on the Diagnostic Accuracy of Magnetocardiography

MR DEAN POPPY
Grade: 07  Individual project
Kilbourne MS, Worthington
Waste-Full Energy

MR ARVIND SAI PRASAD
Grade: 11  Team project
Sycamore HS, Cincinnati
Optimizing T4 Bacteriophages in a Cream: Creating an Effective Treatment Against Superbugs

MR TAREN PRINZ
Grade: 08  Individual project
St Peter, Huber Hts
Straw Wars

MS MOLLY PROCHASKA
Grade: 08  Individual project
Bishop Flaget, Chillicothe
Does the Amount of Bacteria in the Mouth Vary Based on Gender?

MS VIVIENNE PROFFITT
Grade: 05  Individual project
New Albany Intermediate School, New Albany
Which Email Format Gets the Most Responses?

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MR ANDREW PRYATEL
Grade: 07  Individual project
St Francis Xavier, Medina
Rusting Out: How Acids Affect the Rate of Corrosion

MS JAIHARSHITHA PUSHPARAJ
Grade: 07  Team project
Olenyngy Shanahan MS, Lewis Center
Oil Outburst

MS TRINITY RABER
Grade: 11  Individual project
Carroll HS, Dayton
The Effect of Various Food Textures on Eisenia fetida Castings

MS CANDICE MARIE RADER
Grade: 11  Team project
Jefferson Area Jr/Sr HS, Jefferson
Can One Construct a Practical and Efficient Water-Powered Generator?

MR QUINN RADER
Grade: 06  Team project
Bowling Green Christian Academy, Bowling Green
Survival of the Calculator

MS IRIS RAFFENSPERGER
Grade: 06  Individual project
Nightingale Montessori Inc, Springfield
The Moldy Food Groups

MR ANUJ RAGHAVAN
Grade: 10  Individual project
William Mason HS, Mason
World Without Waste: Separating Laminated Plastic From Paper

MS RAMYA RAJAN
Grade: 07  Individual project
Mason MS, Mason
Fractal Analysis of Retinal Vessels in Diabetic Retinopathy - A Mathematical Model To Screen for Diabetic Retinopathy

MS SARA AFSANA ELIZABETH RAMAIAH
Grade: 12  Individual project
Mentor HS, Mentor
Water Usage and Leaf Venation Structures in Rhododendron Species and Hybrids

MR BHARATH RAMANUJAM
Grade: 05  Individual project
Willard Grizzell MS, Dublin
Hand Written Notes Vs Computer Notes

MS ISABELLA JULIET RAMBLER
Grade: 08  Individual project
National Inventor’s Hall of Fame MS, Akron
Not Fake News: Climate Change is Real

MS LAKSHANYAA RAMJEE
Grade: 06  Individual project
Menlo Park Academy, Cleveland
Does the Number of Times the Copper Wire Wrapped Around the Nail, Affects The Strength of the Electromagnet?

MS SANJANA RANADE
Grade: 12  Individual project
Lincoln HS, Gahanna
An Investigation of the Validity of Human Face Recognition
ROSTER OF STUDENT EXHIBITORS

MR SUNAY RASTOGI
Grade: 11  Individual project
The University School, Chagrin Falls
THE ROLE OF SERPINB3 ON GLIOBLASTOMA CANCER STEM CELLS

MS SHRUTHI RAVICHANDRAN
Grade: 11  Individual project
Hathaway Brown, Shaker Hts
Targeted Delivery of Immune Agonists for Antitumoral Response of the Tumor Microenvironment

MS ANNE REA
Grade: 08  Team project
St Sebastian, Akron
The Effect of Acid on Milk

MR ANIV RAY
Grade: 12  Individual project
Columbus Academy, Gahanna
Analyzing Kodi Add-ons for Security Vulnerabilities

MS ELLEANNA SINCLAIR RHEE
Grade: 11  Individual project
Sylvania Northview HS, Sylvania
Dilution Series of DNA to Test the Effect of Rose Bengal’s Reactive Oxygen Species

MR RONAN CLANCY RIBAR
Grade: 07  Individual project
St Columban, Loveland
Which Rock is Most Likely to Break my Neighbor’s Window?

MR JACOB TIMOTHY RICE
Grade: 09  Individual project
Arcanum HS, Arcanum
Is a Mile Really a Mile?

MS MARGARET ROSE RICHARDSON
Grade: 07  Individual project
St Vincent de Paul, Mt Vernon
Hidden Sugars

MR JOSEPH RYAN REAMSNYDER
Grade: 11  Individual project
St Paul, Westerville
The Effect of Darkness on the Presence of Starch in Plant Leaves

MR JACOB REASH
Grade: 07  Individual project
St Paul, Westerville
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MR SANJIT REDDY
Grade: 10  Individual project
New Albany HS, New Albany
Rigid Origami

MS ALAINA NICOLE REED
Grade: 11  Individual project
Ashland HS, Ashland
The Effectiveness of Natural Versus Synthetic Cleaners in Removing Shigella and Salmonella from a Surface that has been Exposed to Organic Poultry

MS ELYSE LAUREN REED
Grade: 11  Individual project
Ashland HS, Ashland
The Effect of Oral Immunotherapy on People with Food Allergies

MR JACKSON MICHAEL RICKER
Grade: 07  Team project
Ottoville ES, Ottoville
Cups and Water Temperature

MS TESSA RIEHLE
Grade: 06  Individual project
Tippecanoe MS, Tipp City
Essential Oil Vs Bacteria

MS EMILY ALICE RIGGIO
Grade: 07  Individual project
Fairland MS, Proctorville
No ifs, Ands, or Butts this Toilet Paper is Really Tough

MS HANNAH GRACE RILEY
Grade: 11  Individual project
Hilltop HS, West Unity
The Correlation Between S. Salivarius

MR KAILE LANDEN RILEY
Grade: 08  Team project
Columbian HS, Tiffin
Solar Vs. Wind Energy

MS VALERIE JO RINDLER
Grade: 08  Individual project
Holy Angels, Sidney
Beans, Beans, the Magical Fruit

MR JACOB RINTAMAKI
Grade: 10  Individual project
Westlake HS, Westlake
Transformable Tents: A Novel Design to Aid Humanitarian Efforts

MR LEVI TURNER RIPATO
Grade: 07  Individual project
St Michael Consolidated, Ripley
Bullet Proofing Your Backpack

MS JADEN ELIZABETH RISING
Grade: 11  Individual project
Hilltop HS, West Unity
Effects of Color Blindness and Lighting on Depth Perception

MS MAURA REED RISK
Grade: 07  Individual project
Mother Teresa Catholic, Liberty Twp
Best Material that Reduces Heat

MR KYLE ROACH
Grade: 06  Individual project
Conesville ES, Conesville
Electric Vegetables

MR CHRISTIAN DAVID ROEBUCK
Grade: 07  Individual project
Miller South Visual&Performing Arts, Akron
3-D Printed Vs. Man-made

MS GEMMA ROETENBERGER
Grade: 08  Individual project
Home Schooled - District 11, Hartshorn
How do Age and Gender Impact the Skin Turnover Rate with and without Abra-sion?

MS MARY BRIDGET RODHE
Grade: 06  Individual project
St Mary of the Falls, Olmsted Falls
Maximizing Solar Cell Power Output with Solar Concentrators

MS JOSEPHINE GRACE ROSE
Grade: 11  Individual project
Hilltop HS, West Unity
The Glutton of Gluten

MR ANDREW JAMES ROHDE
Grade: 07  Individual project
Ottoville ES, Ottoville
Cups and Water Temperature

MR MICHAEL THOMAS ROSSMAN
Grade: 12  Individual project
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Grade: 11  Individual project
Ashland HS, Ashland
The Effect of Oral Immunotherapy on People with Food Allergies
MS ANJA FRANCHESKA ROWANE
Grade: 10  Individual project
Beaumont School, Cleveland Hts
Mass Spectroscopic Analysis of nonylphenol ethoxylates (NPEs), nonylphenol (NP), formaldehyde, and p-Phenylenediamine (PPD) in Sportswear

MS LEEANNA MARIE RUEGG
Grade: 12  Individual project
Northwestern HS, W Salem
Knocking Out Certain Arginine Kinases in Caenorhabditis elegans

MR SETH LOGAN RUNDO
Grade: 12  Individual project
Jefferson Area Jr/Sr HS, Jefferson
K-Cups: An Environmental Nightmare

MS SOPHIE RUSH
Grade: 07  Individual project
Incarnation, Centerville
Let's Par-Tee

MR LEVI MARION RUSSELL
Grade: 05  Individual project
Ridgewood School, Springfield
Tee it High or Low

MR RAGHAV JAYAKUMAR SAHADEVAN
Grade: 10  Individual project
The University School, Chagrin Falls
The Impact of Atrial Fibrillation on Heart Failure

MR JUNYA SAKUMOTO
Grade: 06  Individual project
Tippecanoe MS, Tipp City
Which Beverage Grow Bacteria the Most?

MS MIYU SAKUMOTO
Grade: 10  Individual project
Tippecanoe HS, Tipp City
Clock Inside the Hamster

MS ALEXANDRA ROSE SALERNO
Grade: 07  Individual project
St Peter, N Ridgeville
No Regrets Keep it Fresh

MS ELLEN MARIE SALVUCCI
Grade: 06  Individual project
St Vincent de Paul, Mt Vernon
Absorbing Energy

MR BRAEDEN CHRISTOPHER SAMPLE
Grade: 07  Individual project
Mother Teresa Catholic, Liberty Twp
Do Age, Gender, and Device Affect what you Hear?

MS MEREDITH SANDERS
Grade: 09  Individual project
Carroll HS, Dayton
Desalination of Salt Water Using Halophytic Rhizophora mangle

MR ADITYA VARMA SANGU
Grade: 05  Individual project
Heritage ES, Lewis Center
Magnets and Motors

MS SAMANTHA SARGEANT
Grade: 08  Individual project
Holy Angels, Sidney
Glucose, but not Fructose, Increases the Lipid Content of Adipocytes

MR DAVEN SARIKONDA
Grade: 12  Individual project
Sylvania Northview HS, Sylvania
The Gut Microbiota may be a Mediator for Colonic Aquaporin Expression

MS KACEY MICHELLE SAUER
Grade: 10  Team project
Dayton Regional STEM School, Kettering
Effectiveness of Surgical Scrubs

MR NOAH SAUNDERS
Grade: 07  Individual project
Jackson MS, Jackson
How Plants Adapt to Unusual Environments

MS ELLIE CLAIRE SAVAGE
Grade: 07  Individual project
Incarnation, Centerville
Kale or Tale

MR LOHITH SAVARDEKAR
Grade: 11  Individual project
Dublin Coffman HS, Dublin
Exploring the Fuel Efficiency and Environmental Impact of Biofuels

MR REMY ANDRE SAVOIE
Grade: 11  Individual project
Sylvania Northview HS, Sylvania
Developing a Fly Model for the Candidate Centriole Remodeling Protein Fam161

MS MEGAN N. SCHEESER
Grade: 08  Individual project
Hudson MS, Hudson
Replicating the Power Grid with Solar

MR JOHN DAVID SCHMENK
Grade: 10  Individual project
Dayton Regional STEM School, Kettering
The New Horizon of 3D Printing

MS GRACE M. SCHNEIDER
Grade: 08  Individual project
St Christopher, Vandalia
What Influences Taste?

MR ELENA SCHROEDER
Grade: 11  Individual project
Put-In-Bay HS, Put-In-Bay
If Plants that are Watered with Water The Contains Food Coloring will they Change Color?

MR JOHN RAYMOND SEBASTIAN
Grade: 06  Individual project
Bethel JS, Tipp City
Gentle While Environmental

MS JORGE SEBER
Grade: 08  Individual project
Bethel HS, Tipp City
Skeptical Spherification

MR BRANDYN FRANKLIN SEVER
Grade: 12  Individual project
Lehman Catholic HS, Sidney
Hyperloop Versus Mag-Lev

MR OLIVER ROGER SEKORKY
Grade: 06  Individual project
Menlo Park Academy, Cleveland
Plants and Oxygen

MR DYLAN MICHAEL SEIGLE
Grade: 11  Individual project
Bethel HS, Tipp City
Weatherproofing and Heating a Marching Band Keyboard

MR JOHN DAVID SCHMENK
Grade: 10  Individual project
Dayton Regional STEM School, Kettering
The New Horizon of 3D Printing

MS GRACE M. SCHNEIDER
Grade: 08  Individual project
St Christopher, Vandalia
What Influences Taste?

MS ELENA SCHROEDER
Grade: 11  Individual project
Put-In-Bay HS, Put-In-Bay
The Inhibiting Effects of Over-the-Counter Acne Medications on Bacillus subtilis Growth

MS HARLEIGH ANN SCHUERMANN
Grade: 08  Individual project
Global Impact STEM Academy, Springfield
If Plants that are Watered with Water The Contains Food Coloring will they Change Color?

MR RICKY SCHULER
Grade: 07  Individual project
St Brendan, N Olmsted
Tea Vs. Tree

MS ANNE BETH SCOTT
Grade: 08  Individual project
Zane Trace MS, Chillicothe
Colligative Properties

MR JOHN RAYMOND SEBASTIAN
Grade: 06  Individual project
Bethel JS, Tipp City
Gentle While Environmental

MS JULIE SUE SEBASTIAN
Grade: 08  Individual project
Bethel JS, Tipp City
Skeptical Spherification

MS LISA SEBASTIAN
Grade: 11  Individual project
Bethel HS, Tipp City
Weatherproofing and Heating a Marching Band Keyboard

MR DYLAN MICHAEL SEIGLE
Grade: 11  Individual project
Bethel HS, Tipp City
Efficient Wind Turbines

MR OLIVER ROGER SEKORKY
Grade: 06  Individual project
Menlo Park Academy, Cleveland
Plants and Oxygen

MR BRANDYN FRANKLIN SEVER
Grade: 12  Individual project
Lehman Catholic HS, Sidney
Hyperloop Versus Mag-Lev
ROSTER OF STUDENT EXHIBITORS

MS AMNA TARIQ SHAIKH
Grade: 06 Individual project
Dayton Islamic School, Beavercreek
Think Before You Drink

MR REYAN SHARIFF
Grade: 09 Team project
Ottawa Hills Junior/Senior HS, Ottawa Hills
Running App Accuracy

MR KEATING PATRICK SHARP
Grade: 07 Individual project
St Columban, Loveland
The Impact of Dampeners on Snare Drum Overtones

MR RYAN LEIGH SHARP
Grade: 10 Individual project
Oakstone Academy, Westerville
Red Vs. Blue: Which Color Works Best?

MS MEREDITH GRACE SHEA
Grade: 08 Individual project
St Columban, Loveland
Combating the Blaze

MS GRACE SHEETS
Grade: 08 Individual project
St Rose, New Lexington
Are Cargo Carriers a Drag on a Vehicle's Fuel Economy?

MS SOPHIA SUZANNE SHENK
Grade: 08 Individual project
Incarcation, Centerville
What's In Your Water

MR GAVIN SHEPPARD
Grade: 07 Individual project
St Anselm, Chesterland
EMF Protection

MR WEIHUAN SHI
Grade: 11 Team project
Sycamore HS, Cincinnati
Optimizing T4 Bacteriophages in a Cream: Creating an Effective Treatment Against Superbugs

MR JOHN NATHANIEL SHIN
Grade: 09 Individual project
Hawken School, Gates Mills
Enhancing Graphene & Carbon Fiber Electrochemical Supercapacitors with Electrolytes and Redox Agents

MS EMMA ANN SHUMAN
Grade: 10 Individual project
Hicksville HS, Hicksville
Does Music Genre Affect a Dog's Ability to Learn a New Trick?

MR JACOB ROBERT SHUPE
Grade: 12 Individual project
Lincoln HS, Gahanna
Testing the Effects of Fin Number Variation and Serial Staging on Altitude in Model Rocketry

MS CLARISSA SICKAFOOSE
Grade: 08 Individual project
St Mary, Lancaster
How Much Energy is Stored in Different Types of Food?

MS ALORA LEE SIEGEL
Grade: 08 Individual project
Hilltop HS, West Unity
Which Welding Process Most Accurately Represents Filler Material Specifications?

MR HAYDEN SIMON
Grade: 05 Individual project
Unioto ES, Chillicothe
Spin to Win: The Science of Beyblades

MR GAVIN SIMPSON
Grade: 06 Individual project
St Lawrence, Ironon
Cry Me a River

MR AVINASH SINGH
Grade: 12 Individual project
Sylvania Northview HS, Sylvania
A Novel Ex-vivo Procedure for Monitoring β-hydroxybutyrate Production from Isolated, Whole Livers

MS ABBIGAIL EMILIA SISSON
Grade: 09 Individual project
Liberty Union HS, Baltimore
The Effect Drugs Have on the Prefrontal Cortex over Time

MR MICHAEL ANTHONY SLATON II
Grade: 07 Individual project
National Inventor's Hall of Fame MS, Akron
Temperature Vs. Gas

MS EMMALINE A SLAUIENWHITE
Grade: 07 Individual project
Bellbrook MS, Bellbrook
Incredible Magnet Science

MR ANDREW DONALD SMITH
Grade: 12 Individual project
Mentor HS, Mentor
An Analysis of Environmentally Sustainable Alternative Components to Concrete

MS CASSIDY SMITH
Grade: 12 Individual project
Bloom Carroll HS, Carroll
An Investigation into the Cleanliness of E85 and Gasoline

MR NATHAN SMITH
Grade: 08 Individual project
Immaculate Heart Of Mary, Cuyahoga Falls
Do Tennis Rocket Dampeners Affect How Far the Tennis Ball will Travel?

MR AVIRAJ SOIN
Grade: 05 Individual project
The Miami Valley School, Dayton
Creating Renewable Food Sources via Aquaponic Gardening

MR MAX GALLO SON
Grade: 09 Individual project
Upper Arlington HS, Upper Arlington
Mechanical Detection of Positive Current and Voltage Difference In Circuits

MS KARISSA SPEAKMAN
Grade: 09 Individual project
Carroll HS, Dayton
The Effect of Roofing Materials on Rainwater Quality

MR IAAN DANIEL SPENCE
Grade: 09 Individual project
Global Impact STEM Academy, Springfield
Soil Compaction and its Effects on Fertilizer Runoff in Soybean Crops

MR NICHOLAS A SPEYER
Grade: 08 Individual project
St Paschal Baylon, Highland Heights
Off With Their Heads! Planaria Regeneration

MS ANNA GRACE SPOHLER
Grade: 08 Individual project
Global Impact STEM Academy, Springfield
Will the Use of Biosolids in Soil Increase Growth in Kidney Beans?

MR NISCHITH SRIKANTH
Grade: 05 Team project
Willard Grizzell MS, Dublin
Is Your Water Safe?

MR ETHAN CHARLES STAATS
Grade: 07 Individual project
National Inventor's Hall of Fame MS, Akron
The Removal of Oil with Nanotechnology

MS ANDA MARIA STAN
Grade: 12 Individual project
New Albany HS, New Albany
Minimizing light ray closed paths in cyclic quadrilaterals

MS DANA STAN
Grade: 07 Individual project
New Albany MS, New Albany
Solar Water Heater

MR BEN JAMES STAUFFER
Grade: 07 Individual project
Immaculate Conception, Columbus
Bending Bridges

MR PAUL WILLIAM STECKER III
Grade: 06 Individual project
St Mary Central, Martins Ferry
Magnets—Can they Function as Data Erasers?
MR CONNOR STEPHENS  
Grade: 07  Individual project  
Incarntate Word Academy, Parma Hts  
The Effects of Internet Training on Human Behavior Online

MS OLIVIA ROSE STEPHENS  
Grade: 05  Individual project  
St Mary Central, Martins Ferry  
Does the CGM Monitor and the Blood Glucose Meter Produce the same Readings?

MS EMILY NICOLE STEVENS  
Grade: 10  Individual project  
New London HS, New London  
Can Wool be Used to Control Sediment and Phosphorus Losses for an Ohio Soil?

MS ELIZABETH R STEVENSON  
Grade: 11  Individual project  
Mentor HS, Mentor  
Examining Socioeconomic Trends in Post-industrial Rust Belt Cities with Historic and New Markets Tax Credit Investment

MS BRIANNA STEVENS-WOOLERY  
Grade: 06  Individual project  
Warsaw ES, Warsaw  
Glowing in the Dark with Dinoflagellates

MR LIAM STEVENS-WOOLERY  
Grade: 10  Individual project  
River View HS, Warsaw  
Launching Into Mathematics With Catapaults

MR ISAIAH ANDREW STICKLEY  
Grade: 12  Individual project  
Global Impact STEM Academy, Springfield  
Air Flow Visualization Implementation in a LSWT

MR MONTANA BLUE STIDHAM  
Grade: 12  Team project  
Northwestern HS, W Salem  
Posture Pack

MR ELIAS ADAMU STIECKER  
Grade: 06  Team project  
Tippecanoe MS, Tipp City  
An In vacuo Geomagnetic Electron-beam Deflection Study for Simplistic Measurement of the Electron’s Charge-to-Mass Ratio

MS MEKALA BERNADETTE STIFFLER  
Grade: 11  Individual project  
Bloom Carroll HS, Carroll  
Effective Buffers for Preventing Algae Blooms

MR ETHAN LEE STIVER  
Grade: 08  Individual project  
Holy Angels, Sidney  
The Inhibition of Staphylococcus epidermidis

MR IAN ANDREW STIVER  
Grade: 06  Individual project  
Holy Angels, Sidney  
Exercise that Raises Heart Rate

MS DANICA STOFFER  
Grade: 07  Individual project  
East Richland Christian School, St Clairsville  
Feeding Preferences of Cecropia Caterpillars

MR TIM J. STOFFER  
Grade: 10  Individual project  
East Richland Christian School, St Clairsville  
Air Quality: Gas Wells Vs. Country, How Angles Affects Downforce

MS NATALIE STOVER  
Grade: 10  Individual project  
Wynford HS, Bucyrus  
Head Tilt and Memory

MS TORI ANN STRAYER  
Grade: 09  Individual project  
Bloom Carroll HS, Carroll  
The Effects of the Loci Method on High School Students’ Memory,

MS TAYLOR ALEXIS STRILESKEY  
Grade: 08  Individual project  
Seton Catholic, Hudson  
Which Fruit or Vegetables Can Power a clock the Longest?

MR PARKER D STUCHEL  
Grade: 05  Individual project  
L T Ball Intermediate ES, Tipp City  
L How Angle Affects Downforce

MR PATRICK STUCKE  
Grade: 05  Team project  
New Albany Intermediate School, New Albany  
Calculating Efficiency of Wind Turbine Blade

MS NEHAA Suresh  
Grade: 05  Individual project  
New Albany Intermediate School, New Albany  
What Kind of Music Helps Concentrate while Reading?

MR HANS SWAIN  
Grade: 08  Individual project  
The University School, Chagrin Falls  
Can Sweet Potato (Ipomoea batatas) Leaf Extract be used as a Novel Anti-microbial Agent

MS LAURA SWARTZ  
Grade: 09  Individual project  
Normandy HS, Parma  
How Paper Affects Print

MR THOMAS SWARTZ  
Grade: 06  Individual project  
Academy of St Bartholomew, Cleveland  
Rubber Band Contract of Expand

MS SADIE ANNE SWEPSTON  
Grade: 08  Individual project  
Zane Trace MS, Chillicothe  
Flying Paper

MS EMILY KIMIKO SWOPE  
Grade: 09  Individual project  
Bloom Carroll HS, Carroll  
The Disinfection of Stagnant Water Under Winter Conditions Using Natural Sunlight

MS SOPHIA MARIE SZOLOSI  
Grade: 06  Individual project  
East ES, Athens  
Investigating the Effect that Soundscapes have on Task Performance and Mood

MR HARLEY TALBOTT  
Grade: 09  Team project  
Ottawa Hills Junior/Senior HS, Ottawa Hills  
Bridge Type Effectiveness

MR EMIR TALI  
Grade: 09  Individual project  
William Mason HS, Mason  
Solar Tracker Vs. Solar Panel

MS MAYA TANG  
Grade: 07  Individual project  
Hathaway Brown, Shaker Hts  
The Effect of Binocular Versus Monocular Vision on Depth Perception

MR ANTHONY ROBERT TARUTANI  
Grade: 06  Individual project  
St Mary Immaculate Conception, Wooster  
How Many Fins?

MS TORI TARVIN  
Grade: 05  Individual project  
St Michael Consolidated, Ripley  
Which type of salt is best for melting ice?

MS AVERY MARIE TEETERS  
Grade: 08  Team project  
Fairfield Local MS, Leesburg  
Brain Dominance Vs. Personality Correlation

MR DANIEL ETHAN THOMAS  
Grade: 05  Individual project  
Slate Hill ES, Worthington  
Do Wired Earpieces Emit More Radiation Than Wireless?

MR JADEN THOMAS  
Grade: 11  Individual project  
Bloom Carroll HS, Carroll  
A Meta-Analysis of the Effectiveness of Transcranial Magnetic Stimulation on Major Depression Patients

MS ADRIANE ELIZABETH THOMPSON  
Grade: 12  Individual project  
The Wellington School, Columbus  
RNA-seq Identifies Novel Genetic Represion Pathways Related to Viability and Development in the Crop Plant Zea mays
ROSTER OF STUDENT EXHIBITORS
ROSTER OF STUDENT EXHIBITORS

MS MADISON E. WARD
Grade: 08  Individual project
Bishop Flaget, Chillicothe
Which Mouthwash Whiten Teeth the Best?

MR JIMMY P WARHOLY
Grade: 10  Individual project
St Vincent St Mary, Akron
Which Mouthwash Whitens Teeth the Best?

MS ELEANOR JANALYN WARREN
Grade: 11  Individual project
Hilliard Davidson HS, Hilliard
CHK1 Localization in the Nucleus of Transfected U2OS Cells in Relation to Sites of DNA Replication

MS ABIGAIL ELIZABETH WAUN
Grade: 08  Individual project
St Columban, Loveland
Impact of Different Gases on Balloon Inflation

MR CARTER WEBER
Grade: 07  Team project
Genoa MS, Westerville
Popping Science

MR JOHN CHRISTIAN WEDDLE
Grade: 07  Individual project
Miami East JS, Casstown
The Effects of Music on Soybean Plant Growth

MR CARTER WILLIAMSON
Grade: 07  Individual project
Mother Teresa Catholic, Liberty Twp
What Type of Bat Can Hit the Ball the Farthest?

MR ASH CARLTON WILLIAMS
Grade: 11  Individual project
Greenville Sr HS, Greenville
Which Method of Cleaning Farm Fresh Eggs is Most Effective at Removing Bacteria from the Eggshell?

MR LEO DOUGLAS WILLIAMS
Grade: 09  Individual project
Greenville Sr HS, Greenville
The Effects of Different Whitening Solutions on Human Teeth

MS ZOE ANNE WILLIAMS
Grade: 12  Individual project
Miami East HS, Casstown
Bassoon – Dinosour or Innovation?

MS PENNY WEINER
Grade: 06  Individual project
Maumee Valley Country Day, Toledo
pH Wonders

MS KASEY WELLS
Grade: 09  Team project
Rutherford B Hayes HS, Delaware
Nano Killers: The Effects of Nanosilver on Daphnia magna Survival Rate

MS KATHLEEN MOLLY WELLS
Grade: 09  Team project
Rutherford B Hayes HS, Delaware
Nano Killers: The Effects of Nanosilver on Daphnia magna Survival Rate

MR MATTHIAS JOHN WENNING
Grade: 07  Individual project
St Vincent St Mary, Akron
How do Certain Ingredients in Ice Cream Affect When it Melts?

MS SIERRA WENTZ
Grade: 11  Individual project
Bloom Carroll HS, Carroll
How do Certain Ingredients in Ice Cream Affect When it Melts?

MR MAGUIRE WERNTZ
Grade: 05  Individual project
St Paul, N Canton
Energy Produced by Renewable Versus Non-renewable Fuels

MS VINCENT BILLY WHITACRE
Grade: 12  Individual project
Athens HS, The Plains
Bassoon – Dinosour or Innovation?

MR CONNER FRANKLIN WOLFE
Grade: 07  Individual project
Big Walnut MS, Sunbury
Which Rocket Fuel Mix Makes the Best Rocket Fuel?

MS KAITLYN WOOD
Grade: 06  Individual project
St Raphael, Bay Village
Rethink Your Cookie Sheet

MS KRISTIN ELIZABETH GRACE WRIGHT
Grade: 08  Individual project
Bishop Leibold E & W Campus, Dayton
Whose Heart Works Harder?
Congratulations Student Exhibitors!

Below are images from the 71st Annual State Science Day, May 11, 2019.
IMAGES FROM THE 2019 STATE SCIENCE DAY

Below are images from the 71st Annual State Science Day, May 11, 2019.
Opportunities abound for highly-motivated, pre-college, Ohio students with original STEM-related ideas (see chart, facing page). The Ohio Academy of Science (OAS) sponsors programs that can propel any student who has a good idea and persistence to see a complex project through to completion. All OAS programs provide out-of-the-classroom, real-world, preparation for future STEM leaders and entrepreneurs. Numerous awards, scholarships, and networking opportunities are available. Students should talk to their teachers or contact the OAS directly. https://www.ohiosci.org

For over seven decades—using the traditional scientific-method based (i.e., science fair) format—Local, District, and State Science Days have allowed hundreds of thousands of Ohio students, grades 5 to 12, to complete independent research projects. Students present their research to expert judges at each level who provide both numerical scores and invaluable feedback to the students. Any grade 9 to 12 participant advancing to an Ohio District Science Day event has the opportunity to be selected to present at the Buckeye Science & Engineering Fair (BSEF). The top BSEF awardees, in turn, qualify for the International Science & Engineering Fair. Any 6th to 8th grade participant at State Science Day may be selected to participate in the Broadcom MASTERS national competition.

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

Every April, for 129 years, The Ohio Academy of Science has held an Annual Meeting—open to all who are interested in attending. An annual call for papers is held in the fall, prior to the year of the April meeting. Pre-college students are encouraged to submit abstracts of the results of their original research. Submissions are peer-reviewed, and acceptable abstracts are published in the April Program Abstracts issue of The Ohio Journal of Science. Those with published abstracts are then expected to present a poster at the Annual Meeting. The top pre-college students who present at the Annual Meeting are recognized as Melvin Scholars, and have the opportunity to represent Ohio at the national-level American Junior Academy of Science (AJAS) annual meeting.

In addition to the above OAS sponsored programs, highly-motivated, pre-college STEM students should also investigate participation in these established and highly-selective programs: the Ohio Science Olympiad (K to 12; https://ohso.osu.edu/), the Regeneron Science Talent Search (rising grade 12; https://www.societyforscience.org/regeneron-sts/), the Ohio Junior Science and Humanities Symposium (grade 9 to 12; https://www.bgsu.edu/nwo/programs/ohio-junior-science-and-humanities-symposium.html), the National Junior Science and Humanities Symposium (grade 9 to 12; https://www.jshs.org/), and the National Youth Science Camp (summer after high school graduation; http://www.nysf.com/w/programs/nyscamp/)
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April 24, 2021 -
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CAS®
A DIVISION OF THE AMERICAN CHEMICAL SOCIETY
“Science Olympiad led me to explore new avenues of science and engineering, but most importantly, I built leadership skills, the ability to work on a team, and better problem-solving approaches. The effects are material when I work on group projects or need to cooperate with other people.”

**Darren Chang**  
Cornell University

“We need these Science Olympiad students; this is the future of our country, this is the future of our company, the future of our economy. These students are going to be running our companies and moving us into the next generation of technology. It’s a great opportunity for us to invest in our future.”

**R.D. Parpart**  
Team Leader, Steelworker for the Future, ArcelorMittal

Employment in science, technology, engineering and math occupations has grown 79% since 1990, from 9.7 million to 17.3 million today, outpacing overall U.S. job growth. In 2018, 71% of all jobs required STEM skills, according to the Pew Research Center.

In 2018, **71%** of all jobs required STEM skills.

Through rigorous, multi-disciplinary events touching every letter in STEM, Science Olympiad lights pathways to apprenticeships, college and careers while at the same time developing essential employability skills. According to a LinkedIn survey of hiring managers, the three top soft skills in new employees are communication, organization and teamwork.

STEM extracurricular programs like Science Olympiad provide young adults with a glimpse into the future by providing opportunities for mentoring, achieving results: More than 3 in 4 female students interested in STEM careers who have a mentor feel they will be successful pursuing a STEM career.