A 500-pound canoe made of concrete? Our competitive team is just one of the ways you can go beyond the classroom to learn engineering concepts and leadership skills, while making friends for life. Create for the world. Create for the future. Create for good — and have fun doing it.

THE RUSS COLLEGE OF ENGINEERING AND TECHNOLOGY:

Create for Good.

FIND OUT WHAT IT MEANS TO CREATE FOR GOOD AT ohio.edu/engineering
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>What Is State Science Day?</td>
<td>2</td>
</tr>
<tr>
<td>About the Sponsors</td>
<td>3</td>
</tr>
<tr>
<td>Schedule</td>
<td>4</td>
</tr>
<tr>
<td>Council Districts &amp; Host</td>
<td>5</td>
</tr>
<tr>
<td>Multi-Year Students</td>
<td>6</td>
</tr>
<tr>
<td>Officials</td>
<td>7</td>
</tr>
<tr>
<td>Acknowledgement of Supporters</td>
<td>8</td>
</tr>
<tr>
<td>Batelle Volunteers in the Spotlight</td>
<td>9</td>
</tr>
<tr>
<td>Scholarships and Sponsored Awards</td>
<td>10</td>
</tr>
<tr>
<td>Educational Partners</td>
<td>12</td>
</tr>
<tr>
<td>Letter to a Young Scientist</td>
<td>14</td>
</tr>
<tr>
<td>Roster of Judges</td>
<td>16</td>
</tr>
<tr>
<td>Roster of Student Exhibitors</td>
<td>20</td>
</tr>
<tr>
<td>Arena and Field House Maps</td>
<td>34</td>
</tr>
</tbody>
</table>

This publication was produced and printed by The Ohio State University for The Ohio Academy of Science and is available on the web at [ohiosci.org/ssd-2017](http://ohiosci.org/ssd-2017). Printed in the United States of America. Copyright © 2017 by The Ohio Academy of Science. All rights reserved. Except for purposes of literary review or for classroom use by teachers or students, no part of this book may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system without written permission from The Ohio Academy of Science.
For more than 60 years — and now 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 35,000 students at more than 1,000 local school science fairs, more than 1,100 students in grades 5–12 from nearly 300 schools will be evaluated on their scientific research and communication skills. They will compete for nearly 100 different scholarships and awards valued at more than $600,000. Individuals will be recognized and several sponsors will also present awards to members of team research projects.

First held in 1949, the 69th Annual State Science Day is sponsored by: The Ohio Academy of Science, American Electric Power, Battelle, Ethicon, The Ohio Environmental Education Fund, Ohio Tuition Trust Authority College Advantage, and The Ohio State University.

ohiosci.org/ssd-2017

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 more than $600,000 in sponsored awards and scholarships, we seek to honor all exhibitors for their hard work. Please accept our sincere congratulations for your superior 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, Chief Executive Officer

ANGELA DAVIS, Program Manager, Office of Distance Education and eLearning, The Ohio State University

FUTURE SSD DATES

MAY 12, 2018
MAY 11, 2019
MAY 9, 2020
ABOUT THE SPONSORS

AEP OHIO
AEP Ohio is part of American Electric Power (AEP), based in Columbus, Ohio, and serves nearly 1.5 million customers in Ohio. AEP is one of the largest electric utilities in the United States, delivering electricity to more than 5.3 million customers in 11 states. AEP is among the nation’s largest generator of electricity, owning nearly 38,000 megawatts of generating capacity in the United States. AEP also owns the nation’s largest electricity transmission system, a more than 40,000-mile network that includes more 765 kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined.

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.

battelle.org

ETHICON ENDO-SURGERY
It all started with a simple question: What if...?

What if there was a better way to help patients heal after surgery? What if we could improve their lives? What if we could change the way surgery was done forever? And in doing so, change the world for the better?

More than 80 years ago, the first group of Ethicon scientists and researchers started to think about healing in a new way. Their questions led to pioneering sutures that advanced surgeons’ work and discoveries that enhanced patients’ lives today. We produce much more than sutures. Working with our customers and partners, we bring meaningful solutions to every area we touch. To wound closure and general surgery. To women’s health and aesthetic medicine. To minimally invasive procedures and metabolic science. While our world and the field of healthcare have changed, our passion to make a difference for patients remains. As we reach toward every corner of the globe, we remain committed to advancing surgical care and extending patients’ access to health care across the globe.

At Ethicon, we continue to take pride in our heritage. We were founded on innovation and will continue exploring ways to improve surgical outcomes. Improving patient care continues to inspire us to work smarter, partner in more meaningful ways, and never be afraid to imagine a better world by asking the one simple question that started it all. What if...?

ethicon.com

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

epa.state.oh.us/oeef  |  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.

collegeadvantage.com
## 2017 SCHEDULE

### STATE SCIENCE DAY PROGRAM
Hosted by The Ohio State University at the French Field House and St. John Arena | [ohiosci.org/ssd-2017](http://ohiosci.org/ssd-2017)

<table>
<thead>
<tr>
<th>FRIDAY, MAY 12, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00–8:00 PM: Students may set up projects in French Field House</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SATURDAY, MAY 13, 2017 - GENERAL SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students</strong></td>
</tr>
<tr>
<td>7:00 AM: Project set-up</td>
</tr>
<tr>
<td>8:00 AM: Students at space assignments</td>
</tr>
<tr>
<td>8:15 AM: Sponsored Award judging begins</td>
</tr>
<tr>
<td>9:00 AM: State Science Day judging begins</td>
</tr>
<tr>
<td>1:30 PM: Awards Ceremony</td>
</tr>
<tr>
<td><strong>Parents</strong></td>
</tr>
<tr>
<td>7:00 AM: Project set-up</td>
</tr>
<tr>
<td>8:00 AM: Parents leave student exhibit area</td>
</tr>
<tr>
<td>10:00 AM: Parents meeting at St. John Arena (see below)</td>
</tr>
<tr>
<td>1:30 PM: Awards Ceremony</td>
</tr>
<tr>
<td><strong>Sponsored Award Judges</strong></td>
</tr>
<tr>
<td>7:00 AM: Registration</td>
</tr>
<tr>
<td>7:45 AM: Sponsored Award Judges Meeting at St. John Arena</td>
</tr>
<tr>
<td>8:15 AM: Sponsored Award judging begins</td>
</tr>
<tr>
<td>9:00 AM: State Science Day judging begins</td>
</tr>
<tr>
<td>1:30 PM: Awards Ceremony</td>
</tr>
<tr>
<td><strong>Academy Judges</strong></td>
</tr>
<tr>
<td>7:30 AM: Registration</td>
</tr>
<tr>
<td>8:15 AM: Academy Judges meeting at St. John Arena</td>
</tr>
<tr>
<td>9:00 AM: Judging begins</td>
</tr>
<tr>
<td>1:30 PM: Awards Ceremony</td>
</tr>
</tbody>
</table>

### A MESSAGE TO PARENTS: GET TIPS & TOOLS FOR YOUR YOUNG SCIENTIST

Join the Ohio Academy of Science for a special meeting for parents at **10 a.m. in St. John Arena**. Parents will learn about the Academy’s programs and resources to help students throughout their scientific research journey. This meeting will also provide an avenue for open discussion with other parents.
ABOUT THE HOST

For 147 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.
CONGRATULATIONS TO OUR MULTI-YEAR STUDENTS

Each year, the Academy recognizes the students who manage to make it back to State Science Day for 4 years or more. Congratulations to these students as this is an incredibly difficult honor to achieve.

8-year Students
Derek Demel
Abigail Myers

7-year Students
Sarah Lendon
Jackson Tankersley

6-year Students
Zaneh Adya
Rohit Chakravarthy
Edward Drabold
Israa Hamdan
Panayotis Manganaris
Cade McGarvey

5-year Students
Nathaniel Ackerman
Nathan Bell
Jamie Bradbury
Lucas Clark
Jacob Dennis
Natalie Frank
Anna Kruse
Joseph Kruse
Akanksha Malhotra
Atneya Nair
Alexandria Oliverio

4-year Students
Himani Akula
Madison Aleshire
Siddharth Barve
Colleen Bell
Prathik Chakravarthy
Aaron Charnay
Benjamin Charnay
Michael Chmura
Cody Clark
Aurora Fares
Fiona Gaffney
Kylie Gallagher
Aubree Ann Houin
Preston Johanns
Rachel Kahler
Rohit Kataria

Grant Lach
Gretchen Lee
Madison McGuire
Peter Menart
Vineet Prasad
Akul Rajan
Allison Sanders
Brittany Schleeter
Cal Shrimplin
Jordan Skates
Benjamin Slauenwhite
Sam Slutz
Cassidy Smith
Ashwin Veeramani
Leena Vyas
Kaylynn Yockey
Jesse Zhu
THE OHIO ACADEMY OF SCIENCE OFFICIALS

President: Dr. Kerry Cheesman
President-Elect: Dr. Vicki Motz
Past President: Dr. Michael A. Hoggarth
Chief Executive Officer: Michael E. Woytek
Treasurer: Ryan Ware
Junior Academy Council Director: Dr. Brian McEnnis
Chair of Judging: Angela McMurry
State Science Day District Office Manager: Dr. Christina O’Malley
Manager of Administrative Services: Jaimie A. Crawford
Administrative Assistant: Dorie Gruber
ACKNOWLEDGEMENT OF SUPPORTERS

HOST
The Ohio Academy of Science acknowledges the generous support of The Ohio State University, Office of Distance Education and eLearning, and the Department of Athletics.

TITLE SPONSORS
American Electric Power
Battelle
Ethicon
Ohio Environmental Education Fund
Ohio Tuition Trust Authority

GENERAL SPONSORS
Marathon Petroleum Corporation
NOKIA
Ohio Oil & Gas Energy Education Program
Texas Instruments

COMMUNITY SPONSOR
Science Oriented Literature, Art, and Education Foundation Inc.

TABLE-TOP EXHIBITORS
American Electric Power
Battelle
Charles River
CWRU - Office of Undergraduate Admissions
Notre Dame College
Ohio Environmental Education Fund
Ohio Northern University - Biological Sciences
OSU - Physics Department
Ohio Tuition Trust Authority
Ohio Technology and Engineering Educators Association
Science Oriented Literature, Art, and Education Foundation Inc.
University of Rio Grande
USBorne Books

INDIVIDUAL DONORS
Mr John Anthony
Dr Augusta Askari
Mr & Mrs Massimiliano Carone
Mr Juan Dunlap
Dr Martin E English DVM
Mr Philip L Hall
Mr Richard Hinig
Mr & Mrs Jyoti Krishna
Mr & Mrs Steven Lennartz
Mr Kenneth L Powell
Mrs Carolyn Shaw-Lowry
Mr James B Short
Dr Mark Tranovich

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

Michael E. Woytek
The Ohio Academy of Science
1500 West Third Avenue, Suite 228
Columbus, OH 43212-2817
Phone: (614) 488-2228
Fax: (614) 488-7629
E-mail: mwoytek@ohiosci.org
Website: ohiosci.org
For more than 60 years, Battelle has supported Ohio’s State Science Day, through sponsorship and the efforts of its staff who volunteer their time and expertise to make this event so successful. As a leader in STEM education, Battelle is partnered with The Ohio Academy of Science to celebrate and recognize student research accomplishments at State Science Day.

In order to be successful, Ohio’s State Science Day requires nearly 500 volunteers to contribute their STEM expertise as project judges. In 2016, nearly 100 Battelle scientists and engineers judged student projects at State Science Day! Often, this is a student’s first opportunity to interact with a science or engineering professional. Judges serve to score projects, but they are also called on to act as mentors, by providing insight on project improvement or by sharing support and offering encouragement. It’s a task that Battelle takes on enthusiastically.

How do the Battelle volunteers get organized? It starts with a commitment at the top to support the next generation of STEM talent. Dr. Michael Kuhlman, Battelle’s Chief Scientist, is keenly aware of the importance of student originated research. Dr. Kuhlman has extensive experience developing research and development programs, but he spends extra time on top of his leadership role to develop emerging staff and invest in their development. He serves as an advisor to the Emerging Scientists and Engineers Council (ESEC) at Battelle, which helps to recruit judges for the State Science Day event each year.

Dr. Kuhlman is not only a leading judge at State Science Day, but also helps ESEC recruit Battelle professionals. Dr. Kuhlman encourages all Battelle staff to volunteer for State Science Day, last year he pushed for volunteers listing his top two reasons to be part of the event as “Positively impacting students’ interest in pursuing STEM education” and “Demonstrating Battelle’s commitment to STEM education in Ohio.” Last year, 2016, Dr. Kuhlman sent out a request for sign-ups in mid-April and his message resulted in an additional 30+ staff signing up to volunteer judge at the event.

“The success of State Science is only made possible by the support of our caring volunteers,” said Michael E. Woytek, CEO of The Ohio Academy of Science. “Thanks to the leadership of Dr. Kuhlman and the contributions of the Battelle volunteers, State Science Day will enjoy continued success.”
SCHOLARSHIPS AND SPONSORED AWARDS

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

American Meteorological Society Award - 070
American Meteorological Society; Eric Wertz; Northeast Ohio AMS

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

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

Bowling Green State University Science Achievement Scholarship - 193
Bowling Green State University

Capital University State Science Day Scholarship - 002
Capital University

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

COCACM Computer Science Award - 055
Association for Computing Machinery, Central Ohio Chapter

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

Engineering Achievement Award - 059
Engineers Foundation of Ohio

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

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

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 Protection 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

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)

NOKIA Applied Science, Technology & Innovation Award - 232
NOKIA

Nursing Award - 038
Ohio Nurses Association

Ohio Environmental Health Association Award - 087
Ohio Environmental Health Association

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

Ohio University Department of Physics & Astronomy Award of Excellence - 159
Ohio University Department of Physics & Astronomy

Ohio University Department of Physics & Astronomy Scholarship - 160
Ohio University Department of Physics & Astronomy

Ohio University Department of Physics & Astronomy Young Scientist Award - 178
Ohio University

Osteopathic Medical Award - 145
Ohio Osteopathic Association

Outstanding Physics Project Award - 067
American Association of Physics Teachers, Southern Ohio Section; American Physical Society, Ohio Section

Outstanding Project in Plant Pathology - 182
The Ohio State University Department of Plant Pathology
SCHOLARSHIPS AND SPONSORED AWARDS

OWEA Water Environment Science Award - 197
Ohio Water Environment Association

Peter G. Finke Water Management Award - 091
Water Management Association of Ohio

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

Rio Grande State Science Day Chemistry Scholarship - 236
University of Rio Grande

Science of Evolution - 190
The Ohio State University Chapter of Sigma Xi

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

Software Innovations for Healthier Living - 212
Gracie Plum Investments

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

SOLAE Foundation Award for Turning Science Fiction into Science Fact - 221
SOLAE Foundation

Statistical Analysis Award - 023
American Statistical Association, Columbus Chapter

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

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

The OSCA’s Innovation in Proactive and Conservative Healthcare Award - 233
The Ohio State Chiropractic Association

The Science of Public Health Award - 235
The Ohio Public Health Association

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

Wildlife Awareness Award - 051
Ohio Chapter of the Wildlife Society

ENGINEERING AND THE NATURAL SCIENCES
AT THE UNIVERSITY OF MOUNT UNION

UNIVERSITY OF MOUNT UNION
offers majors in:

Engineering:
Civil Engineering
Mechanical Engineering

Natural Sciences:
Biochemistry
Biology
Chemistry
Environmental Science
Geology
Physics

Health Sciences:
Athletic Training
Exercise Science
Health
Medical Laboratory Science
Nursing

Graduate Programs:
Doctor of Physical Therapy
Physician Assistant Studies

mountunion.edu
EDUCATIONAL PARTNERS

2017 PARTNERS
Bowling Green State University
Cleveland State University
Heidelberg University
Lake Erie College
Nationwide Children’s
Ohio Northern University
Ohio Tuition Trust Authority
Ohio University
SOLAE Foundation
Stark State College
Stone Laboratory
University of Mount Union
University of Rio Grande
Youngstown State University

ADVERTISE IN FUTURE PROGRAMS

If you would like to purchase space in future State Science Day programs, visit regoline.com/SSD18.

Choose a program with a record of success. Over the last nine years, Heidelberg students have had an 87% placement rate into medical schools.
Heidelberg offers students opportunities to:

• Work directly with faculty members in our Cadaver and Animal Labs.
• Gain professional experience in the National Center for Water Quality Research
• Receive personal attention and individualized education offered through small classes.

WWW.HEIDELBERG.EDU | Tiffin, OH
Congratulations to Nationwide Children’s Principal Investigator, Mark Peeples, PhD, recently named a STEM Exemplar by the Ohio Academy of Science.

Dr. Peeples is a fellow with the American Association for the Advancement of Science (AAAS) and an expert in vaccine development and infectious diseases. He is currently conducting research to develop a vaccine for the respiratory syncytial virus (RSV), supported by a $6.75 million program project grant from the National Institute of Allergy and Infectious Diseases.

Discover more at NationwideChildrens.org/research
LETTER TO A YOUNG SCIENTIST

OF SCUDS, A MEADOWLARK AND BABY MICE: RECOLLECTIONS OF A CAREER IN SCIENCE

Do not accept mediocrity from anyone, especially yourself.

By Dr. Lynn E. Elfner

On September 30, 2015, Lynn Elfner retired from The Ohio Academy of Science after more than 40 years of service. During his tenure with the Academy, many people in Ohio benefited from numerous initiatives he implemented including an Environmental Science Scholarship program, expansion of State Science Day, and Believe in Ohio. For decades Lynn was the voice of the Academy and he worked tirelessly to promote science in his collaborations with state agencies, businesses, educators, and legislators in the state. His dedication to the mission of the Academy has made a lasting impact in Ohio. The Editors invited Lynn to share his thoughts about his career so that others could understand his motivation for everything that he has done for science in Ohio.

Early life experiences get under your skin in a most powerful way. That, verbatim, is the succinct statement of the findings of the National Academies of Science by contemporary author and Harvard professor Robert D. Putnam, a Port Clinton, Ohio native. It certainly fits my career in science. Experiences by the age of 5 on a farm next to the Great Miami River near De Graff, Ohio molded my interests and character.

I was fascinated by scuds—not the missiles or clouds—but the small side-swimming, translucent crustaceans in our spring. I dissected a Meadowlark that had succumbed to a hay mower and had my first social experience with a member of the opposite sex by offering a girl about my age a handful of nude, baby mice I rescued when my dad was shoveling corn to take to the elevator for grinding. The young girl’s father was not impressed so that relationship ended abruptly.

Our farmhouse was on a gravel ridge, likely a glacial outwash terrace, and our front yard was in the flood plain of the Great Miami River. Here I remember my dad showing me how to drop small stones down crayfish chimneys and hear them hit the water.

I gleaned a minimal knowledge of vertebrate anatomy from a correspondence course entitled Lessons in Taxidermy by J. W. Elwood. Further influencing my interest in animals was Mr. Kenneth Wilburn, my Greeneview High School biology teacher who had all his students collect their own specimens for study.

My mother often read to me and took me to libraries.

Two zoology-related books stand out. One described the many uses of reindeer in Lapland. Another, on falconry, was entitled The Golden Hawks of Genghis Khan.

With these and other biological experiences on the farm and later it should be no surprise that I was a 1967 graduate with a zoology major from the College of Agriculture at The Ohio State University.

As a youth, plants fascinated me too. In particular, I remember encounters with stinging nettles near the river. I remember the heady aroma of the fermented corn silage we fed our Jersey cows. We always gathered walnuts, hickory nuts, red haws, mushrooms, hickory jacks, black raspberries and elderberries. I have vivid memories of playing “jungle” under the canopy of a large stand of Pawpaw trees on the back 40.

Biology was not my only interest. On the farm, I came in close contact with the soil and with the variety of stones in our gravel pit. I loved to find pieces of Pyrite or Fool’s gold and limonite, a rusty-brown, soft chalk-like stone that I marked easily on our back stoop. Mr. Wilburn was influential, again, later in my career. In addition to biology, chemistry and physics, he taught one of the first high school earth science classes in Ohio that I thoroughly enjoyed.

Mechanical devices were available to me too on the farm. A hydraulic ram pumped water from the spring, the pulsator on the milking machine needed constant care and the hay hook attached by rope to pulleys to increase the mechanical advantage lifted the loose hay from a wagon into the haymow.

Several additional factors affected my career choice in science, but one stands out: 4-H. I joined the Greeneview 4-H Conservation Club in the 6th grade and participated throughout high school. Our advisor, the late Fred E. Morr, then Greene County Auditor, later became Director of the Ohio Department of Natural Resources under Governor James A. Rhodes. More than any other organization, 4-H helped to develop personal and group interrelation skills, meeting management skills, and communication skills as well as content knowledge. I took a variety of projects including all of the soil and land use related ones. My indebtedness to 4-H is symbolized by a “Greene” 4-H vanity license plate named for Greene County.
Vocational agriculture and specifically FFA had a very positive effect on my career. Under the influence of our farmer-teacher, the late Carl Pickering, I was a member of a freshman team that received first place in a multi-county FFA land judging contest near Xenia. Not only did this event require specific knowledge of soils, but also as importantly, we needed to match our wits, as a team, against professional soil scientists.

The Ohio Academy of Science influenced me in high school when I earned the honor of exhibiting my fossil project at the District Science Day at Central State University. I did not make it to State Science Day. The lesson learned here was that although I could classify the fossils that I collected at the spillway of Cowan Lake near Wilmington, that project was not science. There was no question, no hypothesis, no method or data and certainly no conclusion. Now I get what science is.

Libraries and books profoundly affected my career. These stand out: The first edition of Ohio Fossils by Aurele La Rocque and Mildred Fisher Marple; Ohio Trees by F. E. Dean and L.C. Chadwick; Field Book of Ponds and Streams by Ann Haven Morgan; and The Fishes of Ohio by Milton B. Troutman.

On the physical science side, one book especially has a lock on my memory: The Boy Builder published in 1933 by Edwin T. Hamilton. This book and subsequent kits for sale in Popular Mechanic’s magazine were forerunners of “Bob the Builder” series for children today.

My knowledge and experience in applied physical science expanded sharply when we sold the farm in 1950 and moved from De Graff to the Jamestown for my dad to become part’s manager for an International Harvester farm store. For many years I encountered numerous mechanical devices. I remember specific items like pitman rods, Woodruff keys and “V” belts. Often my dad would bring home discarded parts for me to disassemble. Little did I know then that disassembly is the first step in reverse engineering. My biggest surprise was an electrical shock from a magneto off an old Farmall tractor. On my 12th birthday, my father gave me a Taylor Weather Station kit that required a great deal more than “some assembly required.” There were no batteries; just the basics that included a sling psychrometer and a nomograph to calculate relative humidity, a barometer, a wind speed and direction indicator, a rain gauge and others. Most importantly, however, the kit contained a notebook that instilled the habit of collecting data. That habit served me well in my own research.

Two years of Latin under the late Ms. Lilian Paulin at Greeneview High School not only helped with scientific nomenclature but also with English writing.

My first professional appointment was as a conservation teacher at 4-H Camp Palmer in Fulton County where I worked every summer during college from 1963-1967, touching the lives of about 5,000 students. Those experiences were parlayed into a 3 year stint as a middle school science teacher at Mount Orab where my star student went on to receive a PhD in geology and chaired the board of Ohio Nature Conservancy, attributing his interest in nature to middle school field trips we took to Adams County prairies and streams.

Following teaching, I received a Master’s degree in botany (1971) from The Ohio State University under Dr. Ronald L. Stuckey where my thesis depended on knowledge of climatology, plants, soils and glacial and Pleistocene geology. A graduate level course in the latter subjects by the late Dr. Richard P. Goldthwait, founder of the Byrd Polar Research Center at Ohio State, greatly aided my research.

As Executive Director of The Ohio Environmental Council, I helped to prevent the construction of un-needed dams and channelization of streams, and helped to save Cedar Bog. The most lasting contribution was in 1972 to establish Rivers Unlimited, now the Nation’s oldest river preservation group.

During my term as a budget analyst in the Ohio Office of Budget and Management, I oversaw the budgets of the Ohio EPA, Ohio Department of Natural Resources, Ohio Power Siting Commission, Ohio Water Development Authority and Ohio Air Quality Development Authority. The most important accomplishment in that position was approving a contract for an advocate who rallied support to create The Cuyahoga Valley National Recreation Area. In 2011, I was pleased to receive an honorary Doctor of Science degree from Ohio Northern University. Thank you, Prof. Terry Keiser. First employed by The Ohio Academy of Science on February 27, 1975, I have spent over 40 years advancing science and science education through the Academy.

Lessons Learned
Immerse yourself as young as possible in science that interests you. Research shows it will get under your skin. Be curious, skeptical and work to discover something new. Apply science daily, especially to understand the weather. Be persistent. Join organizations like 4-H, FFA and The Ohio Academy of Science that connect you with science professionals. Learn to write well. Take a lot more mathematics than I did. Finally, and most importantly, do not accept mediocrity from anyone, especially yourself.

Reprinted by permission from “Letters to a Young Scientist”, Dr. Lynn E. Elfner, 2015. The Ohio Journal of Science, Volume 115 (2) pages 8-10. Copyright © 2015 by The Ohio Academy of Science.
**ROSTER OF JUDGES**

<table>
<thead>
<tr>
<th>Besma Abbaoui, Columbus</th>
<th>Oscar Bermeo, Columbus</th>
<th>Claudia Coleman, Columbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mustapha Abbaoui, Powell</td>
<td>Katie Bible, Brookfield</td>
<td>Sheila Coleman-Gross, Amanda</td>
</tr>
<tr>
<td>Lubna Abu-Niaaj, Wilberforce</td>
<td>Tim Bishop, Vandalia</td>
<td>Christine Commons, Columbus</td>
</tr>
<tr>
<td>Rajesh Acharya, Mason</td>
<td>Saptashati Biswas, Tiffin</td>
<td>Amber Conner</td>
</tr>
<tr>
<td>Shashnk Agrawal, Columbus</td>
<td>Kathryn Blackburn, Westerville</td>
<td>Charles Connolly, Akron</td>
</tr>
<tr>
<td>Shipra Agrawal, Columbus</td>
<td>Lisa Blair, Columbus</td>
<td>Charlie Cook, Temperance</td>
</tr>
<tr>
<td>Brandon Aigner, Columbus</td>
<td>Anthonette Blake, Warren</td>
<td>Akil Cornish, Wilberforce</td>
</tr>
<tr>
<td>Barry Allred, Dublin</td>
<td>Michael Bogan, Ottawa</td>
<td>Jim Cowan, Columbus</td>
</tr>
<tr>
<td>Gretchen Ambler, Blacklick</td>
<td>Deborah Bogard, Ashley</td>
<td>Michael Criscione, Mineral Ridge</td>
</tr>
<tr>
<td>Mark Ambler, Blacklick</td>
<td>Randy Bostick, Springboro</td>
<td>Tamara Criswell-Carder, Columbus</td>
</tr>
<tr>
<td>Abigail Ambrose, Coshocton</td>
<td>John Boyd, Granville</td>
<td>Teresa D'Alessandro, Concord Twp</td>
</tr>
<tr>
<td>Sam Andriani, Columbus</td>
<td>Sharon Bradley-Skelton, Avon Lake</td>
<td>Mark Dalman, Canton</td>
</tr>
<tr>
<td>Sara Aniol, Columbia Station</td>
<td>Bobby Brennenman, Columbus</td>
<td>Imed Dami, Wooster</td>
</tr>
<tr>
<td>Alan Anthenat, Grove City</td>
<td>Karen Briley-Saebo, Columbus</td>
<td>Joshua Davis, Columbus</td>
</tr>
<tr>
<td>Erica Arnold, Galloway</td>
<td>Linda Brown, Cleveland</td>
<td>Kyle Davis, Sunbury</td>
</tr>
<tr>
<td>Makayla Arnold, Butler</td>
<td>Taylor Brown, Columbus</td>
<td>John Davis III, Patriot</td>
</tr>
<tr>
<td>Stephen Bachowski, Springfield</td>
<td>Chris Bruening, Dayton</td>
<td>Jeffrey Dawson, Westerville</td>
</tr>
<tr>
<td>Tabassum Baig, Hilliard</td>
<td>Coleen Bruening, Tipp City</td>
<td>Aaron Deal, Orient</td>
</tr>
<tr>
<td>Divyesh Balamurali, Mason</td>
<td>Jim Bruner, Columbus</td>
<td>Kimberly Deal, Orient</td>
</tr>
<tr>
<td>Russ Bales</td>
<td>Andrew Burchwell, Columbus</td>
<td>Mark DeBruin, Tipp City</td>
</tr>
<tr>
<td>Robert Ball, St. Clairsville</td>
<td>Michael Burgess</td>
<td>Lindy Dejarme, Columbus</td>
</tr>
<tr>
<td>Reshma Banerjee, Wheelersburg</td>
<td>Tracey Burnette, Gallipolis</td>
<td>Daniel del Valle-Morales, Columbus</td>
</tr>
<tr>
<td>Kavitha Bangalore, Dublin</td>
<td>Valarie Burns, Marion</td>
<td>Frank Delsing, Bellbrook</td>
</tr>
<tr>
<td>Nick Barclay, Columbus</td>
<td>Robert Cain, Columbus</td>
<td>Bethany Denton, Columbus</td>
</tr>
<tr>
<td>Taylor Barclay, Columbus</td>
<td>Valerie Cangemi, Nelsonville</td>
<td>Emily Detwiler, Hilliard</td>
</tr>
<tr>
<td>Greg Barnes, Delaware</td>
<td>Geoffrey Carr, Sunbury</td>
<td>Madan Dev, Centerville</td>
</tr>
<tr>
<td>Ben Barnette, Hilliard</td>
<td>Michael Carr, Dublin</td>
<td>Joseph Dienger, Cincinnati</td>
</tr>
<tr>
<td>John Bartholomew, Columbus</td>
<td>Joe Carter, Carroll</td>
<td>Terra Dilley, Fredericktown</td>
</tr>
<tr>
<td>Blaire Bartish, Dayton</td>
<td>Danielle Casey, Newcomerstown</td>
<td>Chris Domas, Columbus</td>
</tr>
<tr>
<td>Timothy Bartlett, Beavercreek</td>
<td>Cyd Castro Rojas, Cincinnati</td>
<td>Stephanie Domas</td>
</tr>
<tr>
<td>D Michele Basso, Columbus</td>
<td>Bonnie Cenci, Mt. Orab</td>
<td>Raymond Dong, Columbus</td>
</tr>
<tr>
<td>Robin Bautista, Columbus</td>
<td>Edith Chang, Columbus</td>
<td>Jamie Doup, Galena</td>
</tr>
<tr>
<td>Christina Beargie, Columbus</td>
<td>Qiang Chen, Milford</td>
<td>Jack Doyle, Strongsville</td>
</tr>
<tr>
<td>Heather Beckler, Fayetteville</td>
<td>Alyssa Chilcote, Columbus</td>
<td>Eric Drozdowski, Powell</td>
</tr>
<tr>
<td>Elizabeth Begle, Dublin</td>
<td>Srinivas Chitivel, New Albany</td>
<td>Rachael Duelley, Powell</td>
</tr>
<tr>
<td>Marc Behrendt, Somerset</td>
<td>Hanbin Cho, Columbus</td>
<td>Tony Duong, Columbus</td>
</tr>
<tr>
<td>Alex Beigel, Columbus</td>
<td>Michelle Clement, Columbus</td>
<td>Pankaj Dwivedi, Oxford</td>
</tr>
<tr>
<td>Megan Bell, Canal Winchester</td>
<td>Jonathan Cleveland, Dayton</td>
<td>Holly Dyer, Ada</td>
</tr>
<tr>
<td>Elizabeth Berg, Columbus</td>
<td>Coen Cobb, Canton</td>
<td>Jessica Dyszel, Columbus</td>
</tr>
</tbody>
</table>
ROSTER OF JUDGES

Bob Earles, New Albany
Pete Edmonds
Emmanuel Elendu, Liberty Twp
Pierre Elhindi, Twinsburg
Cindy Ellinger, Hilliard
Mohammad Elnakish, Columbus
Dana Evans, Rio Grande
Vivian Ezeh, Gambier
Amgad Fahmy, Columbus
Mohammad Fakhari, Columbus
Dawn Fallacara, Columbus
Maryam Fallahi, Dayton
Jeff Fantine, Lancaster
Phil Farina, Toledo
Tom Farrow, Swanton
LeeAnn Favorito, Paulding
Emily Fessler, Covington
Aaron Fields, Columbus
Sarah Finch, Dayton
Jennifer Findell, Columbus
Todd Fisher, Twinsburg
Sarah Fitz, Columbus
Michael Fitzgibbon, Lancaster
Theresa Forrest, Powell
Aaron Frank, Columbus
Steven Frantz, Smithville
Lee Fredette, Dublin
Claire Freitag, Lewis Center
David Frickey, Columbus
Lena Furci, Columbus
Vinay Gadkari, Columbus
Sarah Garno, Groveport
Amy Garrett
Adam Garver, Columbus
Jennifer Garver, Columbus
Cory Gaston, Columbus
Anne Gavorcik, Groveport
Maggie Gilbert, Columbus
Justin Glier, Columbus
Charles Godsey, Columbus
Andy Goldschmidt, Columbus
Douglas Green, Columbus
Rod Green, Columbus
Marilynn Greer, Chillicothe
Katie Gressel, Columbus
N. Grubbs, Columbus
Thomas Gruzs, Westerville
Devan Guagenti, Columbus
Don Gudaitis, Anderson Twp
Andrew Gurnee, New Albany
Ian Haggerty, Columbus
Richard Hall, Worthington
Tracy Hall, Sidney
Gary Halliday, Beavercreek
Joanne Hancock, North Canton
Thomas Hanusa, Hilliard
Katie Hardin, Columbus
Heather Hardy, Kitts Hill
Kristen Hauser
Chip Hawks
Ashley Hay, Plain City
Monica Hecker, Cambridge
Devonie Herdeman, London
Joshuah Hess, Xenia
Ellen Hill, Columbus
Barbara Hilligoss, Hilliard
Cristelle Hines, Fairborn
Erica Hitzhusen, Worthington
Michael Hoover, Columbus
Bruce Hoppert, Cincinnati
Angela Howard, Columbus
Megan Howard, Columbus
Angela Hoy, Lancaster
Abigail Hubacher
Andrea Hufstedler, Columbus
Pam Hunt, Columbus
Oktay Ince, Dayton
David Jackson, Tipp City
Patrick Jacobs, Tipp City
Sridhar Jaligama, West Jefferson
Kenton Jarvis, Streetsboro
Manori Jayasinghe, Cincinnati
Cayn Jennice, Columbus
Qi Jin, Athens
Jill Johnson, Delaware
Sara Johnson, Dublin
Merin Jose, Dublin
Jojo Joseph, Dublin
Deepthi Joshi, Dublin
Jeff Jostpille, Ottawa
Dawn Justice, Coshocton
Sarah Kahaian, Delaware
Vijay Kale, West Jefferson
Omer Kaleli, Dayton
Ramanitharan Kandiah, Wilberforce
Archana Karajagi, Mason
Rebecca Karl, Columbia Station
Hanspreet Kaur, Copley
Thomas Kear, Poland
Carolyn Keir, Dublin
Travonya Kenly, Columbus
Pooja Khatri, Cincinnati
Samantha King, Columbus
Luke Kinninger
Meghan Klee, Columbus
Joshua Klein, Ada
Donald Knapke, Dayton
Michael Knapke, Plain City
Katherine Knostman, Columbus
Amanda Koenig, Sidney
Michael Koenig, Greenville
Ritsu Kondo, Columbus
Nuri Korganci, Columbus
Brian Kowal, Beavercreek
Laura Kramer, Columbus
Price Kruse, Canal Winchester
Michael Kuhlman, Powell
ROSTER OF JUDGES

Kimberly Kuhls, Akron
Joseph Kulig, Tallmadge
Swati Kunduri, Liberty Township
Alison Lake, Chillicothe
Ram Lalgudi, Columbus
Anup Lamichhane, Ada
Andrew Landgraf
Rhea Lanierr, Columbus
Haydee Lara, Columbus
Jennifer Larson, Columbus
Nicole Law, Hilliard
Noah Lemire, Columbus
Julie Leslie, Cincinnati
Christopher Lightle, Saint Paris
Lalitha Locker, Dayton
Dominic LoVaglio, Mason
Chris Lucas, Columbus
Travis Lucas, Grove City
Barbara MacEwen-Mogren, Grove City
Ian MacGregor, Dublin
Randi Mackler, Columbus
Mina Makary, Columbus
Morris Makobongo, Columbus
Lisa Malloure, Columbus
Susheel Malloure, Westerville
Mahan Mansouri, Columbus
Don Matthews, Upper Sandusky
Jean McClintock, Lexington
John McClintock, Lexington
Micah McCreery, Columbus
Christine McMillan, Wadsworth
Caitlin McNeil, Columbus
Benjamin McPherson, Maineville
Bailey Meeker, Columbus
Theresa Meli, Middleburg Hts.
Hannah Miller, Wauseon
Rebekah Miller, Wauseon
James Menart, Dayton
Michelle Messner, Wadsworth
Larry Miller, Columbus
Angela Minard-Smith, Marysville
Anna Mincks, Frazeysburg
Anjali Mishra, Columbus
Donna Mitchell, Rio Grande
Malcolm Mogren, Grove City
Sujit Mohanty, Cincinnati
Ryan Moon, Hebron
Kelly Moore, Columbus
Sandy Morelli, Wintersville
Mike Morton, Westerville
Sharon Morton, Westerville
Vicki Motz, Ada
Matt Mower, Saint Clairsville
Bob Moyer, Columbus
Quintin Muhlenkamp, Greenville
Jason Mulligan, Columbus
Riley Mullins, Carroll
Shelley Mumaw, Ottoville
Padmamalini Murali, Cincinnati
Roberta Murnyack, Highland Hts
Laura Murphy, Ironton
Asmita Murumkar, Columbus
Philip Myers, Sunbury
Andy Napper, Portsmouth
Ethel Naseem, Garfield Heights
Kathryn Nelson, Sylvania
Anna Newman-Griffis, Columbus
Denis Newman-Griffis, Columbus
Alicia Nussbaum, Ottawa
Laura O'Brien, Columbus
Elizabeth O’Dea, Grandview Heights
Crittenden Ohlemacher, Akron
Sidney Osborn, Dayton
Rod Osborne, Hebron
Leroy Owens, Mount Vernon
Lloyd Owens, Coshocton
Eugene Palaparty
Grace Palaparty
Lou Pallay, Bexley
Ari Pandian, Columbus
Nicole Panstingel, Springfield
David Parry, Hamler
Ian Pasco, Bellefontaine
Susan Pasco, Bellefontaine
Ellyn Pastor, Hilliard
Sagar Patel
Ryan Paul, Lakewood
Jennifer Paulus, Fort Loramie
Jessica Payne, Kenton
Laurie Penix, Salem
Christopher Perkins, Englewood
Rita Peterson, Bellbrook
Tiffany Phillips, Painesville
Veronica Phillips, Huber Heights
Brandy Pipps, Cedarville
Jennifer Plahovinsak, Plain City
Elif Polat, Cleveland
Tony Polinori, Columbus
Sahil Popli
Stacy Porter, Columbus
Rahul Prasad
Susan Prater
Joanna Price, Akron
Richard Proeschel, Medina
Jazmine Quinn, Columbus
Beth Quinones, Cincinnati
Rosalyynn Quinones, Chesapeake
Ganesh Radhakrishnan, New Albany
Rajeswaran Radhakrishnan, Miamisburg
Anshiya Ramanathan
Timothy Ray, Madison
Bindhu Rayaprolu, Columbus
Rashmeet Reen, Columbus
Jessica Replogle, Cincinnati
Charles Ridenour, Shelby
Stephen Riffle, Cincinnati
Zachary Risch, Dublin
ROSTER OF JUDGES

Rob Robertson, North Ridgeville
Rush Rogers, Columbus
Jeffrey Rohde, Steubenville
Jessica Ross, Norwood
Nate Russart, Hilliard
Fayez Safadi, Akron
Deepak Sahoo, Mentor
Prasanta Kumar Sahoo, Dublin
Hamed Samandari, Middletown
Sameeul Samee, Cincinnati
Anthony Saraceno, Delaware
Hasan Savas, Lorain
Zachariah Sayre, Oakwood
Mackenzie Scharenberg, Columbus
Bradley Schaser, Fostoria
Ginny Scherer, Sidney
Scott Schricker, Columbus
Michael Schwemmer, Columbus
Susan Search, Circleville
James Sebastian, Tipp City
Banafsheh Seyed-Aghazadeh, Middletown
Jennifer Seymour, Newark
Shetal Shah, Broadview Heights
Hiba Shamma, Columbus
Brigid Sharek, Plain City
Tom Sharp, Terrace park
Emily Shaub, North Canton
Ryan Shearer, Loudonville
Johnathon Sheets, Athens
Sarah Shellenbarger, Galloway
Jason Sheppard, London
Lindsay Sheppard, Columbus
Matthew Shomper, Miamisburg
Trina Short
Alexander Shumar, Somerset
Hannah Simon, Upper Arlington
Nash Simon, Columbus
Rajiv Singhal, Dublin
Gary Sitler, Newark
Bruce Smith, Zanesfield
Heather Smith, New Philadelphia
William Smith, Cincinnati
Greg Sneed, Springfield
Anna Snyder, Columbus
Sandra Soto-Caban, Zanesville
Paul Stecker, Martins Ferry
David Stellmack, Columbus
Katy Stephens, Peebles
Jake Stevens, Cincinnati
Jennifer Stevenson, Hudson
Teara Stickley, Columbus
Billie Stiffler, Columbus
Vincent Stokes, Dayton
Kavitha Subramanian Vignesh, Cincinnati
Murali Sundaram, Cincinnati
Savannah Sutton, Columbus
Rachid Taha, Dublin
Gregory Taylor, Dayton
Sharon Tharp, Mount Vernon
Deppthi Sharan Thatiparti, Cincinnati
Thomas Timko, Canfield
Lynda Titterington, Columbus
Sinuon Todd, Columbus
Byron Tolbert, Columbus
Jeremy Tomb, Tipp City
Sabra Tomb, Tipp City
Mo Toumert, University Heights
Ryan Tran, Holland
Jonathan Tubb
Lena Tucker, Columbus
Melissa Tully, Columbus
Frederick Twumasi, Athens
Carol Ungvarsky, Broadview Hts
Jonathan Ungvarsky, Broadview Hts
Richard Ungvarsky, Broadview Hts
Matthew Vanderpool, Upper Sandusky
Kathryn VanDixhorn, Columbus
Saradhadevi Varadharaj, New Albany
Srikanth Vedamoorthy, New Albany
V Vandhana Veerni, Galena
Santosh Vijapur, Columbus
James Vondenberg, Concord Township
Joy Voorhees
Jennifer Walker, Troy
Matt Wallslaeger, Johnstown
Mu Wang
Troy Weaver, Canal Winchester
Jeanne Wehri
Jenny Welch, Chillicothe
Angela Wendel, Bradford
David Westfall, Uniontown
Joseph Whiston, Worthington
Emily Wieringa, Plain City
Parker Wiksell, Columbus
Shawndelle Wilcoxson, Dayton
Christy Wilhelm, Columbus
Steve Wilhelm, Urbana
Jordan Williams, Coshocton
Aaron Wilson, Columbus
Stevin Wilson, Columbus
Jessica Wohlgamuth-Benedum, Columbus
Kelly Woodruff, West Salem
Jing Xu, Englewood
Robert Yano, Galloway
Anita Yaple, Circleville
Amber Yeager, Chardon
Ruth Yerardi, Chillicothe
Meghan Yugulis, Columbus
David Zehala, Galena
Jacquelyn Zevenbergen, Cuyahoga Falls
Xian-Kui Zhu, Columbus
John Ziebro, Maumee
<table>
<thead>
<tr>
<th>ROSTER OF STUDENT EXHIBITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MS MARYAM ABBAS</strong></td>
</tr>
<tr>
<td>Horizon Science Academy, Cleveland</td>
</tr>
<tr>
<td>A Novel Antimicrobial Solution: The Effects of Plant-Derived Oils on Pathogenic Bacteria and Fungi</td>
</tr>
<tr>
<td><strong>MS MOLLY ADAMS</strong></td>
</tr>
<tr>
<td>Space: 248 Grade: 8</td>
</tr>
<tr>
<td>Paulding HS, Paulding</td>
</tr>
<tr>
<td>Which hydroponic growing medium is best for growing soybeans?</td>
</tr>
<tr>
<td><strong>MS BAILEY ADLER</strong></td>
</tr>
<tr>
<td>Space: 253 Grade: 12</td>
</tr>
<tr>
<td>Northwestern HS, W Salem</td>
</tr>
<tr>
<td>Identifying a Natural Mutation in the Promoter Region of the SOV 1 Locus in a Solanum lycopersicum Variant</td>
</tr>
<tr>
<td><strong>MS KATRINA ABBOTT</strong></td>
</tr>
<tr>
<td>Space: 983 Grade: 10</td>
</tr>
<tr>
<td>Fairland HS, Proctorville</td>
</tr>
<tr>
<td>Drinking Bacteria</td>
</tr>
<tr>
<td><strong>MS MADELYN ABRUZZESE</strong></td>
</tr>
<tr>
<td>Space: 946 Grade: 10</td>
</tr>
<tr>
<td>Mapleton HS, Ashland</td>
</tr>
<tr>
<td>Using T4 Phage To Kill E Coli</td>
</tr>
<tr>
<td><strong>MR JASSEIM ABDULLAH</strong></td>
</tr>
<tr>
<td>Space: 481 Grade: 6</td>
</tr>
<tr>
<td>International Academy of Cincinnati, West Chester Rocks and Freezing</td>
</tr>
<tr>
<td><strong>MS NOOR ALEXANDRIA ABUKARAM</strong></td>
</tr>
<tr>
<td>Space: 785 Grade: 8</td>
</tr>
<tr>
<td>Waite HS, Toledo</td>
</tr>
<tr>
<td>Restrictions on Protection Bracing</td>
</tr>
<tr>
<td><strong>MS SYNNEMARIA ABUKARAM</strong></td>
</tr>
<tr>
<td>Space: 900 Grade: 9</td>
</tr>
<tr>
<td>Waite HS, Toledo</td>
</tr>
<tr>
<td>Which Material in a Shin Guard Reduces Bacterial Infection?</td>
</tr>
<tr>
<td><strong>MS LAALITYA ACHARYA</strong></td>
</tr>
<tr>
<td>Space: 584 Grade: 8</td>
</tr>
<tr>
<td>Mason MS, Mason</td>
</tr>
<tr>
<td>TraffEnerate: Generating Electricity from Vehicular Traffic</td>
</tr>
<tr>
<td><strong>MR NATHANIEL T ACKERMAN</strong></td>
</tr>
<tr>
<td>Space: 1056 Grade: 12</td>
</tr>
<tr>
<td>Tuscarawas Valley HS, Zoonville</td>
</tr>
<tr>
<td>The Application of the Meissner Effect in Respect to Superconductivity</td>
</tr>
<tr>
<td><strong>MR WILLIAM ACREE</strong></td>
</tr>
<tr>
<td>Space: 1049 Grade: 5</td>
</tr>
<tr>
<td>Big Walnut Intermediate, Sunbury Electrifying Magnet Might</td>
</tr>
<tr>
<td><strong>MR BEAU ADAIR</strong></td>
</tr>
<tr>
<td>Space: 144 Grade: 7</td>
</tr>
<tr>
<td>Our Lady Of Perpetual Help, Grove City Personality On Media</td>
</tr>
<tr>
<td><strong>MS ELLIE ADAM</strong></td>
</tr>
<tr>
<td>Space: 855 Grade: 8</td>
</tr>
<tr>
<td>Guardian Angels, Cincinnati</td>
</tr>
<tr>
<td>Does the Diameter of a Vein Affect Blood Flow Rate</td>
</tr>
<tr>
<td><strong>MS CHARLOTTE ADAMS</strong></td>
</tr>
<tr>
<td>Space: 912 Grade: 8</td>
</tr>
<tr>
<td>Walnut Hills HS, Cincinnati</td>
</tr>
<tr>
<td>Reflected Ultraviolet Radiation Exposure in Athletes</td>
</tr>
<tr>
<td><strong>MS EMMA ALBERT</strong></td>
</tr>
<tr>
<td>Space: 423 Grade: 8</td>
</tr>
<tr>
<td>St Mary, Lancaster</td>
</tr>
<tr>
<td>The Coagulation of Milk Using Fruit Enzymes</td>
</tr>
<tr>
<td><strong>MR BENJAMIN ALBRINCK</strong></td>
</tr>
<tr>
<td>Space: 441 Grade: 8</td>
</tr>
<tr>
<td>St Ignatius Loyola, Cincinnati</td>
</tr>
<tr>
<td>Humans vs. Artificial Neural Networks</td>
</tr>
<tr>
<td><strong>MR AVERY ALDER</strong></td>
</tr>
<tr>
<td>Space: 720 Grade: 5</td>
</tr>
<tr>
<td>Lake MS, Millbury</td>
</tr>
<tr>
<td>Fertilizer: Is more really Better?</td>
</tr>
<tr>
<td><strong>MS MADISON A ALESHIRE</strong></td>
</tr>
<tr>
<td>Space: 1102 Grade: 8</td>
</tr>
<tr>
<td>Big Walnut HS, Sunbury</td>
</tr>
<tr>
<td>Aquaponics: Monitoring Growth of Perca flavescens, Oreochromis aureus and Lactuca sativa</td>
</tr>
<tr>
<td><strong>MR LUKE ALLEN</strong></td>
</tr>
<tr>
<td>Space: 537 Grade: 7</td>
</tr>
<tr>
<td>River View MS, Warsaw</td>
</tr>
<tr>
<td>Speed Racer</td>
</tr>
<tr>
<td><strong>MS MADELYN ALLEN</strong></td>
</tr>
<tr>
<td>Space: 1131 Grade: 8</td>
</tr>
<tr>
<td>Home Schooled - District 7,</td>
</tr>
<tr>
<td>Chirper’s Choice</td>
</tr>
<tr>
<td><strong>MS SIERRA AMATANGELO</strong></td>
</tr>
<tr>
<td>Space: 1043 Grade: 9</td>
</tr>
<tr>
<td>Minerva HS, Minerva</td>
</tr>
<tr>
<td>Pitch Perfect</td>
</tr>
<tr>
<td><strong>MR TEJASAI AMATHI</strong></td>
</tr>
<tr>
<td>Space: 196 Grade: 7</td>
</tr>
<tr>
<td>Hyatts MS, Powell</td>
</tr>
<tr>
<td>Which Drinks Have the Highest Glucose Concentration Level After Adding the Enzyme Invertase</td>
</tr>
<tr>
<td><strong>MS ALEXIS AMES</strong></td>
</tr>
<tr>
<td>Space: 1102 Grade: 8</td>
</tr>
<tr>
<td>Oakwood MS, Canton</td>
</tr>
<tr>
<td>How Does Temperature Affect the Rebound of a Golf Ball?</td>
</tr>
<tr>
<td><strong>MR MITCHELL AMOS</strong></td>
</tr>
<tr>
<td>Space: 402 Grade: 8</td>
</tr>
<tr>
<td>Oakwood MS, Canton</td>
</tr>
<tr>
<td>It Is Rocket Science</td>
</tr>
<tr>
<td><strong>MS ABBY ANDERSON</strong></td>
</tr>
<tr>
<td>Space: 816 Grade: 7</td>
</tr>
<tr>
<td>St Mary, Marietta</td>
</tr>
<tr>
<td>Which Popular Children’s Beverage Causes the Most Tooth Decay?</td>
</tr>
<tr>
<td><strong>MR CHRISS ANDERSON</strong></td>
</tr>
<tr>
<td>Space: 624 Grade: 7</td>
</tr>
<tr>
<td>Hyre CLC, Akron</td>
</tr>
<tr>
<td>“Will Wind Work?”</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>MS IMONI ANDERSON</td>
</tr>
<tr>
<td>MS NORA ANDERSON</td>
</tr>
<tr>
<td>MS SHELBY ANDERSON</td>
</tr>
<tr>
<td>MR NATHAN ANDREWS</td>
</tr>
<tr>
<td>MS NORA ANDERSON</td>
</tr>
<tr>
<td>MS SHELBY ANDERSON</td>
</tr>
<tr>
<td>MR NATHAN ANDREWS</td>
</tr>
<tr>
<td>MS MARY ANNO</td>
</tr>
<tr>
<td>MR DANIEL ANTHONY</td>
</tr>
<tr>
<td>MS HOPE ANTHONY</td>
</tr>
<tr>
<td>MR RYAN ANTHONY</td>
</tr>
<tr>
<td>MS SOPHIA ANTUNES</td>
</tr>
<tr>
<td>MR KADEN ARANGELOVICH</td>
</tr>
<tr>
<td>MR BLAKE ARCHER</td>
</tr>
<tr>
<td>MS ISYSS ARCHIE</td>
</tr>
<tr>
<td>MS SANJANA ARE</td>
</tr>
<tr>
<td>MS KAYLA ARENS</td>
</tr>
<tr>
<td>MS ALEXANDRA ARN</td>
</tr>
<tr>
<td>MR GRANT ARNOLD</td>
</tr>
<tr>
<td>MS MARISSA ARNOLD</td>
</tr>
<tr>
<td>MS NITIKA ARORA</td>
</tr>
<tr>
<td>MR BATUHAN ASLAN</td>
</tr>
<tr>
<td>MR SAMIR ATAI</td>
</tr>
<tr>
<td>MS CLAIRE ATKINSON</td>
</tr>
<tr>
<td>MR BRADLEY AXE</td>
</tr>
<tr>
<td>MR DYLAN AXE</td>
</tr>
<tr>
<td>MR PARKER BACHMANN</td>
</tr>
<tr>
<td>MR STEPHEN BACHOWSKI</td>
</tr>
<tr>
<td>MS EMILY BACKUS</td>
</tr>
<tr>
<td>MS KATHERINE BAGLEY</td>
</tr>
<tr>
<td>MS MEARAN BAHNEY</td>
</tr>
<tr>
<td>MS ALEXIS BAILES</td>
</tr>
<tr>
<td>MR RYAN BALLOU</td>
</tr>
<tr>
<td>MR GABE BAKER</td>
</tr>
<tr>
<td>MS MARY ELIZABETH BAKER</td>
</tr>
<tr>
<td>MR JIMMY SCOBY</td>
</tr>
<tr>
<td>MS SYLVIE BALLOU</td>
</tr>
<tr>
<td>MS CELIA BARANEK</td>
</tr>
<tr>
<td>MR ANDREW BARBARO</td>
</tr>
<tr>
<td>MR ALEC BARGA</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>MS ALEXIS BARHORST</td>
</tr>
<tr>
<td>MR JOSEPH BARLAGE</td>
</tr>
<tr>
<td>MS EMMA BARLOW</td>
</tr>
<tr>
<td>MS MADELINE BARNETT</td>
</tr>
<tr>
<td>MR WILL BARON</td>
</tr>
<tr>
<td>MS KATHERINE BARR</td>
</tr>
<tr>
<td>MS JASMINE BARRICK</td>
</tr>
<tr>
<td>MS OLIVIA BARTA</td>
</tr>
<tr>
<td>MS OLIVIA BARTLETT</td>
</tr>
<tr>
<td>MS VICTORIA BARTLETT</td>
</tr>
<tr>
<td>MR SIDDHARTH D BARVE</td>
</tr>
<tr>
<td>MS PARI BASANT</td>
</tr>
<tr>
<td>MS SIENNA BASSO-SCHRICKER</td>
</tr>
<tr>
<td>MR HIRAK BASU</td>
</tr>
<tr>
<td>MS MEGHA BATTINA</td>
</tr>
<tr>
<td>MR IAN A BEARD</td>
</tr>
<tr>
<td>MS EMMA BEASLEY</td>
</tr>
<tr>
<td>MR TYLER BEATTIE</td>
</tr>
<tr>
<td>MS EMMA BEAVERS</td>
</tr>
<tr>
<td>MR SOL BEECH-TURNER</td>
</tr>
<tr>
<td>MS ANGELIEH BEHR</td>
</tr>
<tr>
<td>MS COLLEEN M BELL</td>
</tr>
<tr>
<td>MR NATHAN J BELL</td>
</tr>
<tr>
<td>MS GABRIELLA BELSITO</td>
</tr>
<tr>
<td>MS LOURDES BENENCIA COURREGES</td>
</tr>
<tr>
<td>MS CASSIE BENKIS</td>
</tr>
<tr>
<td>MR RYAN BENNE</td>
</tr>
<tr>
<td>MR JOHN BENSON</td>
</tr>
<tr>
<td>MS KAYLA BERENZEA</td>
</tr>
<tr>
<td>MS MORGAN BERLIN</td>
</tr>
<tr>
<td>MS HANNAH BERNSTEIN</td>
</tr>
<tr>
<td>MS NATALIE BERT</td>
</tr>
<tr>
<td>MS ALLENNA BERTRAM</td>
</tr>
<tr>
<td>MS AVA BESKITT</td>
</tr>
<tr>
<td>MS ANNIE BETE</td>
</tr>
<tr>
<td>MS SARAH BEVELHYMER</td>
</tr>
<tr>
<td>MS MEGHAN BHANOO</td>
</tr>
<tr>
<td>MR ARJUN BHATIA</td>
</tr>
</tbody>
</table>
The Ohio Academy of Science

ROSTER OF STUDENT EXHIBITORS

MS PRIYA BHATT
Space: 328 Grade: 9
Ottawa Hills HS, Toledo
The Salt Bridge Experiment: Effect of Changing Voltage on pH Change

MS BROOKE BIAGI
Space: 1083 Grade: 7
St Michael, Worthington
Does the type of stretching performed before a split jump affect the height?

MS NEKYRA K BIGELOW
Space: 924 Grade: 9
Mapleton HS, Ashland
Comparing the antibiotic properties of common household substances

MS AUDREY BIRKES
Space: 288 Grade: 8
St Edward, Ashland
Sugar Content Change in Fruit

MR AUSTIN BISSELL
Space: 487 Grade: 12
Mentor HS, Mentor
Designing an EmDrive to Test Thrust Anomaly

MS ANNABELLA BLACK
Space: 488 Grade: 7
St Columban, Loveland
Soil Stability during an Earthquake

MR RYAN BLAIR
Space: 1004 Grade: 7
St Louis ES, Owensville
Comparison of Load Bearing Capacity of 3D Printed Shapes

MR BRYCE BLANEY
Space: 1037 Grade: 7
Paint Valley MS, Bainbridge
If It’s Not In Use, Cut The Juice

MS TIMBER BLANKENSHIP
Space: 625 Grade: 7
Ada HS, Ada
Power By Water

MS KARMYN BLIZZARD
Space: 786 Grade: 7
Bucyrus MS, Bucyrus
How long does Milk last after its expiration date?

MS MARITA BOCKELMAN
Space: 63 Grade: 8
Bishop Leibold E & W Campus, Dayton
Brain Bugger

MS MARGARET BOHMER
Space: 783 Grade: 11
Sylvania Southview HS, Sylvania
Solubility of MOMIPP in Varying Organic Solvents and Gelating Substances for Targeted Delivery

MR SAM BOHNER
Space: 496 Grade: 5
St Mary Immaculate Conception, Wooster
Airfoil and How It Affects Lift

MS LAUREN BOLAND
Space: 540 Grade: 10
Bishop Fenwick, Franklin
Bridge Design and Tensile Strength

MS RACHEL BOLIN
Space: 174 Grade: 8
North Adams HS, Seaman
Are Student Sensitivity Levels Higher in Dominant or Non dominant Hand?

MS TAYLOR BOLON
Space: 166 Grade: 7
Oakwood MS, Canton
How Background Color Impacts Vision

MS MADELINE BONFILS
Space: 468 Grade: 12
Bishop Fenwick, Franklin
The Effect of Nanosilver on Daphnia Magna

MS ISABEL BONILLA
Space: 468 Grade: 12
Horizon Science Academy, Lorain
Is it Hot in Here or is it Just Me?

MS CALE BORLAND
Space: 999 Grade: 5
Big Walnut Intermediate, Sunbury
Football Air Pressure Deflategate or Temperature Difference in the Thermoelectric Effect

MS ANNABELLA BLACK
Space: 559 Grade: 7
St Mary, Lancaster
The Chosen Towel

MR NATHAN BOSTELMAN
Space: 596 Grade: 11
Patrick Henry HS, Hamler
Which Stain Remover is Best for Clothes: Stick or Spray?

MR ANDREW BROWN
Space: 1121 Grade: 5
Wheelersburg MS, Wheelersburg
How do nutritional supplements impact conception rates in cattle?
ROSTER OF STUDENT EXHIBITORS

MS ARIANA BROWN  
Space: 15 Grade: 12  
Hilltop HS, West Unity  
Testing Student Engagement in Learning Processes in Real vs. Virtual Dissection

MS AVERY BROWN  
Space: 317 Grade: 6  
Bishop Flaget, Chillicothe  
Do sulfates have a negative effect on the health of hair?

MS JORDYN BROWN  
Space: 959 Grade: 12  
Metro Early College HS, Columbus  
Kingella kingae mreB Mutation Leads to Increased Sensitivity to Antibiotics and Reactive Oxidants

MS SKYRA N BROWN  
Space: 451 Grade: 8  
Geneva JS, Geneva  
Selecting Your Wi-Fi Router

MR TREY BROWN  
Space: 1086 Grade: 8  
St Mary, Marietta  
What hits a baseball farther, wooden or metal bats?

MR ZACH A BROWN  
Space: 499 Grade: 8  
National Inventor’s Hall of Fame School, Akron  
The Effects of G-Forces on Pilots and Aircraft during Aerial Combat

MS ANGELA BRUNNER  
Space: 1144 Grade: 9  
Lehman Catholic HS, Sidney  
The Effect of Dimethyl Sulfoxide on the Regeneration of Planarians

MS MELANIE BRUNNER  
Space: 181 Grade: 11  
Lehman Catholic HS, Sidney  
The Effect of Water on Protein Denaturation

MS EMMA BRUNS  
Space: 994 Grade: 8  
St Columban, Loveland  
What genre of music grows the most bacteria?

MS KATIE BRUNS  
Space: 245 Grade: 5  
DeColores Montessori, Greenville  
If Wisconsin Plants are watered with rain water, well water, and vitamin water, which plant will grow the tallest?

MR TYLER BRYAN  
Space: 502 Grade: 6  
Keene ES, Keene  
How Style Affects Flight

MS DARBY JOSEPHINE BUBP  
Space: 121 Grade: 11  
Piqua HS, Piqua  
Testing the Validity of the Zodiac

MS CAROLINE BUENDIA  
Space: 793 Grade: 7  
Our Lady Of Perpetual Help, Grove City  
Vitamin C Is Key

MR MATTHEW BUERSCHEN  
Space: 427 Grade: 9  
Archbishop Alter HS, Kettering  
Most Effective Solution for Road Treatment

MS SARAH BUNGARD  
Space: 591 Grade: 6  
St Paul, Salem  
The Point of a Parabola: Focusing Signals For a Better Wireless Network

MS DRAVEN BURDOCK  
Space: 1080 Grade: 6  
Wilson Hill ES, Worthington  
Surface Tension Versus Sublimation? Why Do Small Pieces of Dry Ice Float?

MS GLORIA BURGDORF  
Space: 710 Grade: 8  
Home Schooled - District 11, Duck Wash  
What Shape of Skyscraper Can Withstand the Most Wind

MR ELIJAH CAMPBELL  
Space: 173 Grade: 8  
Miller South Perf Visual & Arts School, Akron  
The Importance Of Bee Education

MS VALENTINA CARR  
Space: 784 Grade: 12  
Sylvania Southview HS, Sylvania  
The Viability of N-AcetylcySTEINE Supplement to Thin the Cervical Mucus

MS REBECCA CUBE  
Space: 36 Grade: 11  
St Vincent St Mary, Akron  
The Reality Behind Rock, Paper, Scissors: The Factors that Impact a Human's Decision Making Process

MR BRIAN CAO  
Space: 98 Grade: 10  
Upper Arlington HS, Upper Arlington  
Identifying the ideal soluble factor and extracellular matrix protein for differentiating stem cells into liver cells

MR MAXIMILIAN J CARR  
Space: 98 Grade: 10  
Sylvania Southview HS, Sylvania  
The Effect of Personality Type on Media Preference

MS VALENTINA CARR  
Space: 784 Grade: 12  
Sylvania Southview HS, Sylvania  
The Viability of N-AcetylcySTEINE Supplement to Thin the Cervical Mucus
MR JONAH CARTER  
Space: 595 Grade: 10  
Carroll HS, Dayton  
Oil Based Protective Lubricant Effects on Aged Polyvinyl Chloride Automotive Interior Materials

MS LIESL CARTER  
Space: 354 Grade: 8  
St Charles Borromeo, Kettering  
Luminol and blood reaction on different surfaces

MS ALLISON CARTWRIGHT  
Space: 327 Grade: 5  
Bethel ES, Tipp City  
Levitating Letters

MR BEN CASTELINO  
Space: 82 Grade: 7  
Athens MS, Athens  
Are emojis an effective way to communicate emotions?

MR MICHAEL CASTELLANOS  
Space: 860 Grade: 10  
The University School, Chagrin Falls  
Comparing the Yield and Cytotoxicity of NK Cells Expanded With Different Feeder Cells

MS MELANIE CASTO  
Space: 963 Grade: 12  
Bloom Carroll HS, Carroll  
Bacteria in Restaurant Ice Water

MR PRATHIK A CHAKRAVARTHY  
Space: 446 Grade: 10  
Beavercreek HS, Beavercreek  
Design and evaluation of optimal classifier as diagnostic screen for Autism Spectrum Disorder

MR ROHIT V CHAKRAVARTHY  
Space: 580 Grade: 12  
Beavercreek HS, Beavercreek  
Primary user authentication of cognitive radio using underlay waveform

MR SUDARSHAN V CHAKRAVARTHY  
Space: 446 Grade: 9  
Beavercreek HS, Beavercreek  
Design and evaluation of optimal classifier as diagnostic screen for Autism Spectrum Disorder

MS ELISE CHAMPAGNE  
Space: 335 Grade: 5  
Columbia MS, Columbia Station  
Does the Presence and Size of Seed Crystals Affect Crystal Growth?

MS ALTHEA E CHAN  
Space: 738 Grade: 10  
Thomas Worthington HS, Worthington  
Water Quality Determination Using Total Coliform Bacteria

MR REECE CHANAY  
Space: 681 Grade: 5  
Northwestern ES, W Salem  
Wind power

MS JESSICA CHANG  
Space: 989 Grade: 8  
Hathaway Brown, Shaker Hts  
The Effect of Increasing Electric Field Strengths on Bacterial Competency to Express Foreign Genes

MR AARON P CHARNAY  
Space: 226 Grade: 12  
Sycamore HS, Cincinnati  
The Feasibility of Using Bamboo as a Source of Ethanol for Fuel

MR BENJAMIN P CHARNAY  
Space: 226 Grade: 12  
Sycamore HS, Cincinnati  
The Feasibility of Using Bamboo as a Source of Ethanol for Fuel

MR PRATHAMESH CHATI  
Space: 1141 Grade: 11  
William Mason HS, Mason  
The Effect of Temperature on Reptilian Digestion

MS JENNIFER CHEN  
Space: 401 Grade: 8  
Athens MS, Athens  
Detection and Analysis of Pesticides in Conventional and Organic Produce

MS LUCIA CHEROK  
Space: 1127 Grade: 7  
St Timothy, Columbus  
Color from a Bird’s Eye View

MR CHARLES CHESNES  
Space: 1017 Grade: 5  
Delaware Christian, Delaware  
Sparks-a-jumping

MS SHRUTHI CHIDAMBARAM  
Space: 79 Grade: 9  
Sycamore HS, Cincinnati  
Melodic Memory

MR PRANAV CHOKSHI  
Space: 995 Grade: 11  
William Mason HS, Mason  
Growth Paths of Biological Polymers

MS LUCILLE CHMURA  
Space: 1125 Grade: 8  
St Hilary, Fairlawn  
2-Dimensional Image Recognition Patterns in Northeast Ohio Bird Populations

MR SAAGAR CHITIVELI  
Space: 576 Grade: 5  
New Albany 2-5 ES, New Albany  
Maglev

MS LISA CHOE  
Space: 293 Grade: 8  
Buckeye Valley Local MS, Delaware  
The Speed at Which Varying Forms of Advil Dosages Dissolve in Carbonated Apple Juice

MR KYLE CHRISTMAN  
Space: 896 Grade: 12  
Anna HS, Anna  
The Effects of Peppermint on Mental Performance When Solving a Rubik’s Cube

MS MARTHA CIBASU  
Space: 186 Grade: 10  
Horizon Science Academy, Columbus  
Increasing Fermentation Rate and Ethanol Production by catalysts

MR ANDREW CICCOTELLI  
Space: 333 Grade: 8  
St Francis Xavier, Medina  
Electrolysis of Water - Harnessing the Power Within

MS SNIGDHA CINGIREDDI  
Space: 684 Grade: 7  
Hathaway Brown, Shaker Hts  
Wind Turbines

MS ALLY CISCO  
Space: 1 Grade: 11  
Anna HS, Anna  
What’s in a Face?

MR CODY N CLARK  
Space: 284 Grade: 10  
Zane Trace HS, Chillicothe  
Super Inoculated Soybeans

MR LUCAS A CLARK  
Space: 430 Grade: 11  
Zane Trace HS, Chillicothe  
Alternative Energy Collection and Storage Reservoir Using Supersaturated Solutions
ROSTER OF STUDENT EXHIBITORS

MS MARTHA CLEARY
Space: 394 Grade: 7
Immaculate Conception, Columbus
The “Scoop” on Ice Cream: An investigation of the effects of milk fat on freezing time

MS ANNAMARIE CLINE
Space: 815 Grade: 8
Bloom Carroll MS, Carroll
Which Liquid Stains Teeth the Most?

MR CHARLEY CL YNE
Space: 543 Grade: 5
Zane Trace MS, Chillicothe
Wheel Size and Distance

MR JONATHAN COATES
Space: 388 Grade: 10
Hudson HS, Hudson
Oxidation of Oils

MR CHRISTOPHER CODOJNI
Space: 1130 Grade: 12
Worthington Kilbourne HS, Columbus
Courtship Behavior of Triploid Zebrafish

MS CECILIA COGLIANESE
Space: 393 Grade: 7
St Michael, Worthington
Which Food Dissolves the Fastest in Muriatic Acid?

MS ADDISON COLCLASURE
Space: 156 Grade: 8
Tower Heights MS, Centerville
Puzzles Under Pressure

MS HALEIGH COLLIER
Space: 819 Grade: 5
Wheelerburg MS, Wheelersburg
A Toothy Eggperiment

MS SARAI COMBS
Space: 428 Grade: 8
Weisenborn MS, Huber Hts
Thermochromatic Liquid Crystals

MR ANDREW CONNAIR
Space: 1092 Grade: 9
Carroll HS, Dayton
Impact of Blade Angle Change on Hydro Turbines and Their Efficiency

MS KAMRYN CONNERS
Space: 894 Grade: 6
East Richland Christian School, St Clairsville
Which bandage sticks underwater the longest?

MR JOSEPH G CONTI
Space: 387 Grade: 12
St Vincent St Mary, Akron
Thermoplastic Polyurethane Ionomers

MR JOSEPH CONTI
Space: 683 Grade: 7
St Joseph, Cuyahoga Falls
Shade Balls

MR KALE CONWAY
Space: 404 Grade: 8
DeColores Montessori, Greenville
The Great Coolant Race

MS REBECCA COOK
Space: 811 Grade: 10
Hudson HS, Hudson
Tooth durability

MS KATIE COOL
Space: 152 Grade: 8
Bishop Leibold E & W Campus, Dayton
“They’re Not Sticking!”: A Gender Study on Frustration

MR TY CORDONNIER
Space: 603 Grade: 7
Glenwood MS, Findlay
What type of Glue is the Strongest

MR ALEXANDER COURTRIGHT
Space: 57 Grade: 6
Warsaw ES, Warsaw
Amazing Illusions

MS EMILY CRITES
Space: 177 Grade: 6
Geneva JS, Geneva
A “PAWS”-tive Influence: Does Pet Therapy Improve Social and Emotional Behaviors in School?

MS DASHA CROCKER
Space: 909 Grade: 8
Bellbrook MS, Bellbrook
The Half-Mile Challenge

MR JONATHAN CROOK
Space: 854 Grade: 7
St Mary, Lancaster
Redhead Hotheads

MS KORI CROOKSTON
Space: 947 Grade: 10
Hudson HS, Hudson
The Effect of Ammonia on the Growth of Mold

MR NOAH CRUMM
Space: 462 Grade: 5
East Richland Christian School, St Clairsville
Comparison of MB per second

MR MATTHEW CRUMP
Space: 92 Grade: 8
Tower Heights MS, Centerville
Speedy Senses

MS GRACE CULLISON
Space: 795 Grade: 6
Warsaw ES, Warsaw
My Gelatin is AFFIRMative

MS REILLY CURP
Space: 832 Grade: 8
Oakwood MS, Canton
Which bandage sticks underwater the longest?

MS DARBY CURRAN
Space: 326 Grade: 8
Graham MS, St Paris
Saltwater Circuit

MS KATHERINE CUSTER
Space: 798 Grade: 9
Archbishop McNicholas HS, Cincinnati
Stickiness of Bandages

MS HAYLEY CYMERMAN
Space: 553 Grade: 7
Miller South Perf Visual & Arts School, Akron
Polar Pop vs. Speedy Pop

MS CHLOE CZAPER
Space: 406 Grade: 5
L T Ball Intermediate ES, Tipp City
Evaluating the Melting Points of Various Frozen Liquids at Room Temperature
MS LAUREN E DALTON  
Space: 398 Grade: 11  
Dayton Regional STEM School, Kettering  
Ethanol Fuel: Changing the Octane Levels in Gasoline

MS LEAH DALTON  
Space: 504 Grade: 9  
Dayton Regional STEM School, Kettering  
Turbine Twist

MR EDWARD DAN  
Space: 1026 Grade: 9  
Solon HS, Solon  
How Can Phase Change Materials Reduce Energy Consumption

MS TAYLOR DANKWORTH  
Space: 866 Grade: 10  
Troy HS, Troy  
Corresponding Colors with Flavors

MS ABBEY DANNE  
Space: 38 Grade: 7  
Big Walnut MS, Sunbury  
Grocery List Memory

MR BEN DAVIS  
Space: 325 Grade: 10  
Versailles HS, Versailles  
HHO Torch

MR SCOTT DAVIS  
Space: 766 Grade: 9  
Ottawa Hills HS, Toledo  
How does the change of PSI in a football affect the distance the ball travels?

MS CAROLINE DAY  
Space: 1143 Grade: 7  
St Michael Consolidated, Ripley  
Do the Crude Protein, Fat, & Fiber Content of Rabbit Feed Affect the Nutrient Value of the Manure Produced?

MS ANN DEAFENBAUGH  
Space: 123 Grade: 9  
Lehman Catholic HS, Sidney  
Does Noise Affect How the Body Works?

MS KAYLIE DEAN  
Space: 124 Grade: 8  
St Aloysius, Bowling Green  
There is More Than What Meets the Eye

MS BRIANNA NICOLE DECHRISTOPHER  
Space: 242 Grade: 8  
Bishop John King Mussio Central JS, Steubenville  
Which Fertilizer Grows Rye Wheat the Best?

MR KAI DELSING  
Space: 62 Grade: 8  
Bellbrook MS, Bellbrook  
Aviator vs. Avian

MS KAORI DELSING  
Space: 69 Grade: 6  
Bellbrook MS, Bellbrook  
Sugar Showdown

MR DEREK C DEMEL  
Space: 544 Grade: 12  
Athens HS, The Plains  
Effectiveness of Negative Stiffness Devices at Resisting Seismic Force in Buildings

MR JEREMY DEMUTH  
Space: 723 Grade: 11  
Miller City - New Cleveland HS, Miller City  
The Effect of a Sand Column on Phosphate Levels in Wastewater

MS CLAIRE DENK  
Space: 654 Grade: 9  
Ottawa Hills HS, Toledo  
How Plants Effect the Reduction of Phosphorus

MR JACOB C DENNIS  
Space: 247 Grade: 12  
Pettisville HS, Pettisville  
The Effect of 10-34-00 Starter Fertilizer on Glycine max Yields, Protein and Oil Content

MR EVAN DENNISON  
Space: 413 Grade: 7  
Mapleton MS, Ashland  
Disappearing Liquids

MS CAROLINE DENNY  
Space: 431 Grade: 7  
Alliance MS, Alliance  
Temperature’s Affect On The Efficency of a Fuel Cell

MS CAROLINE DENY  
Space: 343 Grade: 7  
Alliance MS, Alliance  
Temperature’s Effect On The Efficiency of a Fuel Cell

MR OJAS DESHPANDE  
Space: 1050 Grade: 9  
Dublin Coffman HS  
FARADAY LENZ Law

MR SHREYA DEY  
Space: 830 Grade: 12  
William Mason HS, Mason  
Do Relationships Matter? Comparing the Interdependence of Vascular and Biliary Systems During Liver Regeneration

MR SOURAK DEY  
Space: 957 Grade: 10  
Thomas Worthington HS, Worthington  
The Effects of Temperature and Time on Bacterial Transformation by Heat Shocking

MS MARIA DHINOJWALA  
Space: 997 Grade: 11  
Archbishop Hoban, Akron  
Surface Tension with Molecular Dynamics

MR JT DIAZ  
Space: 835 Grade: 7  
Lake Ridge Academy, N Ridgeville  
Agh! That Noise Is Irritating: Effect of Different Decibel Levels On Heart Rate

MR CHRISTOPHER DICK  
Space: 960 Grade: 12  
Metro Early College HS, Columbus  
Effects of Homeopathic Remedies on Bacterial Filamentation in E.coli

MS KAYLYN DICKSON  
Space: 337 Grade: 5  
Northwestern ES, W Salem  
Bottled Water vs Tap Water

MS GIANA DIGAETANO  
Space: 119 Grade: 8  
St Charles, Boardman  
Do Colors Influence Communication in Children with Autism

MR MOHIT DIGHAMBER  
Space: 751 Grade: 10  
Sycamore HS, Cincinnati  
Efficacy of Hydrophytes in the Phytoremediation of Ammonium Nitrate

MS MIRIAM DILE  
Space: 841 Grade: 6  
Chesapeake MS, Chesapeake  
Healthy Gum

MS KELLEY DINGUS  
Space: 143 Grade: 7  
Buckeye Valley Local MS, Delaware  
The Stroop Effect

MR JORDAN DILL  
Space: 122 Grade: 10  
Greenville Sr HS, Greenville  
Are Synonyms Synonymous?

MR THEODORE DIMITROV  
Space: 907 Grade: 11  
Upper Arlington HS, Upper Arlington  
The Impact of Weight on Sevoflurane Induced Glutamate Dysregulation

MS KELLEY DINGUS  
Space: 841 Grade: 6  
Chesapeake MS, Chesapeake  
Healthy Gum

The Ohio Academy of Science - 27
<table>
<thead>
<tr>
<th>Name</th>
<th>Space</th>
<th>Grade</th>
<th>School</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR SAMUEL JOSEPH DISPENZA</td>
<td>545</td>
<td>9</td>
<td>Athens HS, The Plains</td>
<td>Testing the Strength of a Biomorphic Column</td>
</tr>
<tr>
<td>MR IAN DONAHUE</td>
<td>1122</td>
<td>11</td>
<td>Sylvania Northview HS, Sylvania</td>
<td>How Water Temperature Affects the Activity of Largemouth Bass</td>
</tr>
<tr>
<td>MR JASON DONG</td>
<td>236</td>
<td>11</td>
<td>Carroll HS, Dayton</td>
<td>The Power of Biochar + NPK on Crop Growth</td>
</tr>
<tr>
<td>MS KRISHNA DONGAR</td>
<td>1132</td>
<td>9</td>
<td>Metro Early College HS, Columbus</td>
<td>Does Chicken Feed Increase Activity in Chicken Feet?</td>
</tr>
<tr>
<td>MR LUKE DOSECK</td>
<td>1061</td>
<td>5</td>
<td>L T Ball Intermediate ES, Tipp City</td>
<td>Tee It Up: Investigating the Effect of Tee Height on the Distance a Golf Ball Travels</td>
</tr>
<tr>
<td>MR KABIR DOSHI</td>
<td>932</td>
<td>9</td>
<td>William Mason HS, Mason</td>
<td>Microbial Fuel Cell Efficiency</td>
</tr>
<tr>
<td>MS SONALI RAKESH DOSHI</td>
<td>363</td>
<td>10</td>
<td>William Mason HS, Mason</td>
<td>The Fuel for the Future: Optimization of Hydrogen Gas through Electrolysis</td>
</tr>
<tr>
<td>MR RYAN DOWNIE</td>
<td>241</td>
<td>10</td>
<td>Geneva HS, Geneva</td>
<td>Worms and Soybean Growth</td>
</tr>
<tr>
<td>MR EDWARD T DRABOLD</td>
<td>527</td>
<td>12</td>
<td>Athens HS, The Plains</td>
<td>Bicarbonate enriched algae growth system with applications to bioplastics and biofuels</td>
</tr>
<tr>
<td>MS MAHAYLA DRAGOO</td>
<td>485</td>
<td>6</td>
<td>Ripley-Union-Lewis-Huntington MS, Aberdeen</td>
<td>Earthworm Population</td>
</tr>
<tr>
<td>MR SHIVATEJ DUBBAKA</td>
<td>454</td>
<td>11</td>
<td>Oientangy Liberty HS, Delaware</td>
<td>Simulation of the Depolymerization of the Filament, Hook, and Basal Body to Contain Helicobacter pylori</td>
</tr>
<tr>
<td>MR JOHN PAUL DUERR</td>
<td>1101</td>
<td>11</td>
<td>Marlington HS, Alliance</td>
<td>Greatest Penetration Mass vs. Tip</td>
</tr>
<tr>
<td>MR DREW DUFFEY</td>
<td>929</td>
<td>6</td>
<td>Catholic Central JS/HS, Springfield</td>
<td>The Effect of Antibacterial Properties of Foods on Bacterial Growth</td>
</tr>
<tr>
<td>MR DANIEL DUFFY</td>
<td>445</td>
<td>8</td>
<td>Walsh Jesuit, Cuyahoga Falls</td>
<td>Heating Up</td>
</tr>
<tr>
<td>MR GABE DUNCAN</td>
<td>1091</td>
<td>8</td>
<td>Incarnation, Centerville</td>
<td>Top Flite Drives</td>
</tr>
<tr>
<td>MS SYDNEY EADER</td>
<td>39</td>
<td>6</td>
<td>Charles Huber ES, Huber Hts</td>
<td>To Rust Or Not To Rust</td>
</tr>
<tr>
<td>MS ENNA EASTMAN</td>
<td>426</td>
<td>5</td>
<td>Charles Huber ES, Huber Hts</td>
<td>To Rust Or Not To Rust</td>
</tr>
<tr>
<td>MS CASSIE ECKERT</td>
<td>748</td>
<td>8</td>
<td>Bishop Leibold E &amp; W Campus, Dayton</td>
<td>Bacteria Killers on the Loose: How does Nanosilver Affect Daphnia?</td>
</tr>
<tr>
<td>MS GABY ECKRICH</td>
<td>27</td>
<td>6</td>
<td>St Edward, Ashland</td>
<td>The Strop Effect: Exploring the Difference Between Male and Female Reaction Times</td>
</tr>
<tr>
<td>MR CADEN EDELBROCK</td>
<td>734</td>
<td>8</td>
<td>Ottoville ES, Ottoville</td>
<td>Ice Breakers</td>
</tr>
<tr>
<td>MR MARK J EDSALL</td>
<td>159</td>
<td>10</td>
<td>Archbishop Alter HS, Kettering</td>
<td>Studying and Distractions</td>
</tr>
<tr>
<td>MR LANE EGGLESTON</td>
<td>1116</td>
<td>9</td>
<td>Bloom Carroll HS, Carroll</td>
<td>Which Wax Works Better For Skateboarding?</td>
</tr>
<tr>
<td>MR JACOB EMERY</td>
<td>886</td>
<td>6</td>
<td>Rushmore ES, Huber Hts</td>
<td>Electrolyte Challenge</td>
</tr>
<tr>
<td>MS KRISHNA DONGAR</td>
<td>556</td>
<td>9</td>
<td>Bloom Carroll HS, Carroll</td>
<td>The Insulating Effectiveness of Various Window Coverings</td>
</tr>
<tr>
<td>MS HANA ESBER</td>
<td>172</td>
<td>8</td>
<td>Minerva MS, Minerva</td>
<td>How music affects student’s working ability</td>
</tr>
<tr>
<td>MS SADIE ESTLE</td>
<td>661</td>
<td>8</td>
<td>Paulding MS, Paulding</td>
<td>Do Earthworms have an affect on plant growth?</td>
</tr>
<tr>
<td>MS ENNA EASTMAN</td>
<td>426</td>
<td>5</td>
<td>Charles Huber ES, Huber Hts</td>
<td>To Rust Or Not To Rust</td>
</tr>
<tr>
<td>MS CASSIE ECKERT</td>
<td>748</td>
<td>8</td>
<td>Bishop Leibold E &amp; W Campus, Dayton</td>
<td>Bacteria Killers on the Loose: How does Nanosilver Affect Daphnia?</td>
</tr>
<tr>
<td>MS RAE EHBRAR</td>
<td>645</td>
<td>7</td>
<td>West Geauga MS, Chesterland</td>
<td>Windmill Wonders: Which Blade Design Will Provide The Most Power?</td>
</tr>
<tr>
<td>MS GRACE ELHINDI</td>
<td>1025</td>
<td>9</td>
<td>Beaumont School, Cleveland Hts</td>
<td>Photovoltaics, Futuristic Solution.</td>
</tr>
<tr>
<td>MR JACOB EMERY</td>
<td>886</td>
<td>6</td>
<td>Rushmore ES, Huber Hts</td>
<td>Electrolyte Challenge</td>
</tr>
<tr>
<td>MS OWEN EMIG</td>
<td>1088</td>
<td>6</td>
<td>Warsaw ES, Warsaw</td>
<td>Grip It and Rip It: Go Long or Go Home</td>
</tr>
<tr>
<td>MS MOLLIE EMRICK</td>
<td>154</td>
<td>9</td>
<td>Dayton Regional STEM School, Kettering</td>
<td>Marcooking</td>
</tr>
<tr>
<td>MS ABIGAIL ESBENSHADE</td>
<td>556</td>
<td>9</td>
<td>Bloom Carroll HS, Carroll</td>
<td>The Insulating Effectiveness of Various Window Coverings</td>
</tr>
<tr>
<td>MS HANA ESBER</td>
<td>172</td>
<td>8</td>
<td>Minerva MS, Minerva</td>
<td>How music affects student’s working ability</td>
</tr>
<tr>
<td>MS JENNA EUBANK</td>
<td>674</td>
<td>10</td>
<td>Fairland HS, Proctorville</td>
<td>Be Soil My Heart</td>
</tr>
<tr>
<td>MS KIRSTEN EVANS</td>
<td>1096</td>
<td>7</td>
<td>Jackson MS, Jackson</td>
<td>Amount of Air Pressure to Kick Far</td>
</tr>
<tr>
<td>MR PENDLETON EVANS</td>
<td>781</td>
<td>7</td>
<td>Youngstown Christian, Youngstown</td>
<td>Which Sunscreen is most effective in blocking ultraviolet rays?</td>
</tr>
<tr>
<td>MS ELLIE FABER</td>
<td>198</td>
<td>8</td>
<td>Walsh Jesuit, Cuyahoga Falls</td>
<td>UV Fright</td>
</tr>
<tr>
<td>MS SANDARD FADLEY</td>
<td>1135</td>
<td>8</td>
<td>Emmanuel Christian Academy, Springfield</td>
<td>Is Your Best Friend Colorblind?</td>
</tr>
<tr>
<td>MR BLAIR MICHAEL FAHNCKE</td>
<td>547</td>
<td>9</td>
<td>Emmanuel Baptist School, Toledo</td>
<td>Fabrics: Dangerous or Safe?</td>
</tr>
<tr>
<td>MS SUSIE FAN</td>
<td>571</td>
<td>10</td>
<td>Hudson HS, Hudson</td>
<td>Green Flashlight</td>
</tr>
<tr>
<td>MS BRIANA FANAFF</td>
<td>244</td>
<td>12</td>
<td>Anna HS, Anna</td>
<td>Effect of Overcrowding on Soybean Growth</td>
</tr>
</tbody>
</table>
MS MADEISEN FANNIN  
Space: 290 Grade: 6  
Zane Trace MS, Chillicothe  
Preserving Strawberries

MR NATHANIEL FANNING  
Space: 303 Grade: 8  
St Paul, Westerville  
Do Different Solutes Effect The Melting Rate of Ice?

MS AURORA D FARES  
Space: 436 Grade: 8  
Canfield Village MS, Canfield  
Voltage and Electroplating: Is More Better? The Results Are Shocking!

MR LUKE FEATHERSTONE  
Space: 1014 Grade: 6  
Wilson Hill ES, Worthington  
Liquids and Electricity: Always a Bad Mix?

MR CHRISTOPHER FERGUSON  
Space: 768 Grade: 9  
Tinora HS, Defiance  
Could Lactase Expose Hidden Sugar In Milk?

MS STELLA FERRIS  
Space: 292 Grade: 7  
Bowling Green Christian Academy, Bowling Green  
Oxygen in the Air

MR WILLIAM FERRIS  
Space: 350 Grade: 7  
St Agatha, Columbus  
Generic vs. Name Brand Batteries

MR TYLER FERTEL  
Space: 551 Grade: 10  
The University School, Chagrin Falls  
How does the integrity of a football helmet change after reconditioning?

MR MEHMET FESLI  
Space: 616 Grade: 10  
Horizon Science Academy, Cleveland  
Power of a wind turbine

MS MADELINE FINTON  
Space: 384 Grade: 7  
Columbia MS, Columbia Station  
Maximize Iron Absorption

MR KEEGAN FISK  
Space: 1039 Grade: 5  
Unioito ES, Chillicothe  
How does light bulb type affect energy usage?

MS TAYLOR FITCH  
Space: 106 Grade: 8  
St Mary, Lancaster  
How Accurate is the Rorschach Inkblot Test?

MS DANIELLE FLEURIMA  
Space: 364 Grade: 8  
Bishop Flaget, Chillicothe  
Do Chemical Cleaners or Essential Oils Kill More Bacteria

MS JASMINE FLORES  
Space: 1012 Grade: 7  
St Aloysius, Bowling Green  
Does Hair Color Affect the Amount of Static Electricity in the Hair

MR DAWSON FORBUSH  
Space: 982 Grade: 6  
Chesapeake MS, Chesapeake  
Bacterial Biohazard: An Analysis of School Surface Bacteria

MR GAVIN FORD  
Space: 529 Grade: 7  
Tippecanoe MS, Tipp City  
Just Weight For It

MR SULEKH FREDERIC FERNANDO-PEIRIS  
Space: 1112 Grade: 11  
Mt Vernon HS, Mt Vernon  
A Novel Spectroscopic Chemical Sensor Based on Thin Films of Silico Spheres

MR GEORGE FERRIS  
Space: 351 Grade: 7  
St Agatha, Columbus  
Could Lactase Expose Hidden Sugar In Milk?

MS STARR FERRIS  
Space: 292 Grade: 7  
Bowling Green Christian Academy, Bowling Green  
Oxygen in the Air

MR JOHN-HENRY FRANTZ  
Space: 717 Grade: 12  
Lehman Catholic HS, Sidney  
The Effects of UV-A Rays on Water

MR SPENCER FRASE  
Space: 1099 Grade: 11  
Marlington HS, Alliance  
A Sticky Situation

MR CHANCE FRATER  
Space: 953 Grade: 9  
Benjamin Logan HS, Bellefontaine  
Medieval Remedy

MR BRODY FRAVEL  
Space: 1042 Grade: 7  
Oakwood MS, Canton  
How does tension affect potential energy?

MS AMELIA FREEMAN  
Space: 555 Grade: 7  
Our Lady Of Perpetual Help, Grove City  
Is there a difference between the insulating ability of thermos brands?

MS KARIS FRENCH  
Space: 315 Grade: 7  
Circleville HS, Circleville  
Which Material Absorbs the Most Shock?

MR LEO FORD  
Space: 315 Grade: 7  
Circleville HS, Circleville  
Which Material Absorbs the Most Shock?

MR PRESTON FORTUNE  
Space: 688 Grade: 6  
Warsaw ES, Warsaw  
Burn, Baby, Burn

MS CAMILLE FULTZ  
Space: 692 Grade: 8  
Bishop Leibold E & W Campus, Dayton  
Generating Power Using A Microbial Fuel Cell

MR JOHN-HENRY FRANTZ  
Space: 717 Grade: 12  
Lehman Catholic HS, Sidney  
The Effects of UV-A Rays on Water

MR SPENCER FRASE  
Space: 1099 Grade: 11  
Marlington HS, Alliance  
A Sticky Situation

MR CHANCE FRATER  
Space: 953 Grade: 9  
Benjamin Logan HS, Bellefontaine  
Medieval Remedy

MR BRODY FRAVEL  
Space: 1042 Grade: 7  
Oakwood MS, Canton  
How does tension affect potential energy?

MS AMELIA FREEMAN  
Space: 555 Grade: 7  
Our Lady Of Perpetual Help, Grove City  
Is there a difference between the insulating ability of thermos brands?

MS KARIS FRENCH  
Space: 315 Grade: 7  
Circleville HS, Circleville  
Which Material Absorbs the Most Shock?

MR LEO FORD  
Space: 315 Grade: 7  
Circleville HS, Circleville  
Which Material Absorbs the Most Shock?

MR PRESTON FORTUNE  
Space: 688 Grade: 6  
Warsaw ES, Warsaw  
Burn, Baby, Burn

MS CAMILLE FULTZ  
Space: 692 Grade: 8  
Bishop Leibold E & W Campus, Dayton  
Generating Power Using A Microbial Fuel Cell

MR JOHN-HENRY FRANTZ  
Space: 717 Grade: 12  
Lehman Catholic HS, Sidney  
The Effects of UV-A Rays on Water

MR SPENCER FRASE  
Space: 1099 Grade: 11  
Marlington HS, Alliance  
A Sticky Situation

MR CHANCE FRATER  
Space: 953 Grade: 9  
Benjamin Logan HS, Bellefontaine  
Medieval Remedy

MR BRODY FRAVEL  
Space: 1042 Grade: 7  
Oakwood MS, Canton  
How does tension affect potential energy?
MS ANNA FYFE  
Space: 656 Grade: 7  
Bowling Green Christian Academy, Bowling Green  
The Effect of Pollution on the Daphnia Population

MR MATTHEW FYFE  
Space: 372 Grade: 8  
Bowling Green Christian Academy, Bowling Green  
The Effect of Salt on the Production of Hydrogen during Electrolysis

MR DANIEL GABEL  
Space: 920 Grade: 7  
John C Dempsey MS, Delaware  
A Study on the Antiseptic Properties of Essential Oils

MR MATTHEW GABEL  
Space: 372 Grade: 8  
Bowling Green Christian Academy, Bowling Green  
The Effect of Salt on the Production of Hydrogen during Electrolysis

MR ANTHONY GABRIELE  
Space: 818 Grade: 8  
St Luke, Beavercreek  
Storage cases of toothbrushes

MS AMY GABROVSEK  
Space: 874 Grade: 7  
Notre Dame School, Chardon  
Doggy Diets

MS FIONA M GAFFNEY  
Space: 520 Grade: 10  
St Vincent St Mary, Akron  
Organic Corrosion Inhibitors

MS MAEVE GAFFNEY  
Space: 647 Grade: 8  
Sacred Heart of Jesus, Wadsworth  
Fossil Fuel vs. Biofuels: Burning Efficiency

MR LUCA GAGLIANO  
Space: 113 Grade: 6  
West ES, Athens  
Spun dizzy and walked straight

MS EAEM GAGHIT  
Space: 802 Grade: 8  
Valley MS, Lucasville  
Bye Bye Zits

MS AVA GAINER  
Space: 1009 Grade: 5  
East Richland Christian School, St Clairsville  
The Effects of Altering Popcorn Kernels

MS JOSIE GALINIS  
Space: 981 Grade: 11  
Marlington HS, Alliance  
A Common Killer

MS BAILEY GALLAGHER  
Space: 562 Grade: 6  
East Richland Christian School, St Clairsville  
22 Ammo: Price vs Accuracy

MS KYLIE M GALLAGHER  
Space: 483 Grade: 8  
East Richland Christian School, St Clairsville  
Well Length & Production

MS FAITH GAMBLE  
Space: 5 Grade: 8  
Ottoville HS, Ottoville  
Which Gender has the best 5 senses?

MS GRACE GAMBLE  
Space: 5 Grade: 8  
Ottoville HS, Ottoville  
Which Gender has the best 5 senses?

MS ANNA CHRISTINE GANIM  
Space: 754 Grade: 8  
Guardian Angels, Cincinnati  
The Effect of Nanosilver in Consumer Products on Pond Life

MR DAVID GARDNER  
Space: 1095 Grade: 7  
St Louis ES, Owensville  
The Effect of Water to Cement Ratio on the Strength Property of Concrete

MR EVAN GARNER  
Space: 203 Grade: 5  
New Albany 2-5 ES, New Albany  
alerGO

MR NATHAN GATEWOOD  
Space: 1097 Grade: 7  
Ross County Christian Academy, Chillicothe  
The Gauss Rifle

MR JUAN CARLOS GAUDIANO  
Space: 863 Grade: 10  
William Mason HS, Mason  
Novel use of mTOR inhibitors to alleviate chemotherapy induced neurotoxicity

MR LEO GAUERKE  
Space: 606 Grade: 7  
St Mary, Lancaster  
Glue Strength

MS PAIGE GAVIN  
Space: 54 Grade: 8  
St Mary, Lancaster  
Does Music Affect Short Term Memory

MS ASHLEY GEBRARDT  
Space: 59 Grade: 7  
Bishop Leibold E & W Campus, Dayton  
Can Video Games Relieve Pain?

MS MALLORY GEDEON  
Space: 670 Grade: 7  
Bellbrook MS, Bellbrook  
Fish Farming

MS ANNA GEIGER  
Space: 230 Grade: 5  
Columbia MS, Columbia Station  
Hydroponics vs Soil

MR ZACHARY GEIGER  
Space: 167 Grade: 8  
Oakwood MS, Canton  
Does the Money Matter? The Effect Presidential Campaign Spending has on Voter Persuasion

MS CHLOEY GEBON  
Space: 520 Grade: 5  
St Columban, Loveland  
Improving Water Retention in Soil

MR BLAKE GIBB  
Space: 1071 Grade: 6  
Mapleton ES, Ashland  
Soccer Stats: Does psi affect distance?

MR JOHN GILBERT  
Space: 230 Grade: 7  
Bishop Leibold E & W Campus, Dayton  
The Timing of Fungicide Application and Its Effect on Soybean Yield

MS MARISA GILL  
Space: 128 Grade: 11  
Sylvania Northview HS, Sylvania  
Does Clothing Color have an Impact on a Job Interview?

MR ELIJAH GLADDEN  
Space: 1066 Grade: 8  
St Aloysius, Bowling Green  
Descent of a Parachute

MS ANNA GODLEWSKI  
Space: 810 Grade: 8  
St Raphael, Bay Village  
An Observation of the Effects of Different Cocoa-Cola Products on the Dissolution of Tooth Enamel

MS ARUKSHITA GOEL  
Space: 847 Grade: 11  
Sylvania Southview HS, Sylvania  
Platelet-Dependent Killing of C. albicans in Whole Blood

MS KELLY GOGBIN  
Space: 1033 Grade: 7  
St Benedict, Cambridge  
How does temperature affect the volume of gas?

MS KENDALL GONYA  
Space: 346 Grade: 8  
St Paul, Westerville  
The Effect of Phosphorescence on Char Length of Children’s Sleepwear Designs

MS SAMANTHA GESLER  
Space: 230 Grade: 5  
Columbia MS, Columbia Station  
Hydroponics vs Soil

MR ZACHARY GEIGER  
Space: 167 Grade: 8  
Oakwood MS, Canton  
Does the Money Matter? The Effect Presidential Campaign Spending has on Voter Persuasion

MS CHLOEY GEBON  
Space: 520 Grade: 5  
St Columban, Loveland  
Improving Water Retention in Soil

MR BLAKE GIBB  
Space: 1071 Grade: 6  
Mapleton ES, Ashland  
Soccer Stats: Does psi affect distance?
The Ohio Academy of Science

ROSTER OF STUDENT EXHIBITORS

MR DYLAN GONZALEZ
Space: 679 Grade: 8
St Jude, Elyria
Does the color of light affect how much energy a solar panel produces?

MS AMBER GOUGH
Space: 344 Grade: 10
East Community Learning Center, Akron
Does chemical lighting effect the structure of human hair?

MR DENIS GOVOROV
Space: 588 Grade: 8
Athens MS, Athens
Infrared Sensor Array

MR MARKELL GREEN
Space: 1040 Grade: 7
Athens MS, Athens
Gridiron Battle Body Armor

MR IAN GRETH
Space: 291 Grade: 5
L T Ball Intermediate ES, Tipp City
Gatorade that is least likely to stain

MS NIA GRIBBONS
Space: 915 Grade: 8
Geneva JS, Geneva
Mammalian diving reflex

MS ABBY KAY GRIFFITH
Space: 132 Grade: 7
Bunsold MS, Marysville
Look And Listen

MR MAXIMILLIAN GUO
Space: 639 Grade: 10
Sycamore HS, Cincinnati
Improving the Laser Keyboard

MR DEEPENDU GUPTA
Space: 259 Grade: 9
Thomas Worthington HS, Worthington
Effects of X-Ray Radiation on Crops

MR SAMSON GURGIOLI
Space: 1081 Grade: 5
Emerson ES, Westerville
Just Winging It: Testing the Wing Folds of a Paper Airplane to Determine How That Affects Flying Distance

MS LIEZL GUSTAFSON
Space: 898 Grade: 7
Bethel JS, Tipp City
Temperature’s Effect on Muscles

MR RYAN GUSTAFSON
Space: 1029 Grade: 7
St Paul, Westerville
Where Does a Bouncing Ball’s Energy Go?

MS TALA HACHWA
Space: 942 Grade: 7
Village Academy, Powell
Do Press-on Nails Harbor More Bacteria Than Bare Nails

MR BEN HACKENBERG
Space: 875 Grade: 9
Hudson HS, Hudson
Baby Milk

MS ALEXANDRA HADAWAY
Space: 422 Grade: 11
Oakstone Academy, Westerville
Investigating the Kinetics of the Iodine Clock Reaction

MS LANA HADDAD
Space: 417 Grade: 8
St Raphael, Bay Village
How Borax Affects the Viscosity of a Glue and Water Mixture

MS NATALIE HADDAD
Space: 296 Grade: 11
Beaumont School, Cleveland Hts
Got Milk? Mapping the Zinc Concentration in Homemade vs. Silk Almond Milk

MS EDITH HAEDER
Space: 574 Grade: 11
Horizon Science Academy, Columbus
MeGo Lock

MS CARSYN HAGANS
Space: 472 Grade: 7
Archbold MS, Archbold
The Effects of Chemical Weathering on Rocks

MS ABBY HAIGHT
Space: 746 Grade: 6
St Paul, Westerville
Where Does a Bouncing Ball’s Energy Go?

MR KHALID HAMDAN
Space: 721 Grade: 11
Toledo Early College Academy HS, Toledo
The effect of phosphorus concentration in geese feces on the environment

MR HAMISH HAYWARD
Space: 453 Grade: 8
Rosewood School, Springfield
Energy Released from Food

MS SARAH HALLMARK
Space: 968 Grade: 6
Ridgewood School, Springfield
Bacteria Rocks

MS ISRAA A HAMDAN
Space: 721 Grade: 11
Toledo Early College Academy HS, Toledo
The effect of phosphorus concentration in geese feces on the environment

MS LEILA HAMDAN
Space: 171 Grade: 7
Canton Country Day, Canton
Unfamiliar Faces
ROSTER OF STUDENT EXHIBITORS

**MS CLAUDIA HAMILTON**
Space: 515 Grade: 10
Hawken School, Gates Mills
Study of the Poly(epsilon-caprolactone)/Poly(lactic acid) Polymer Solution Blend to Improve Flexibility and Durability of an Artificial Blood Vessel Using the Plasma-enhanced Chemical Vapor Deposition Method (Vapor PECVD).

**MS GRACE K HAMILTON**
Space: 831 Grade: 12
Turpin HS, Cincinnati
Potassium Clearance and Acute Kidney Failure

**MR KURT HAMILTON**
Space: 490 Grade: 9
Lynchburg-Clay HS, Lynchburg
The Effect of Land Management on Soil Infiltration Rate

**MS SYDNEY HAMILTON**
Space: 285 Grade: 6
Lynchburg-Clay MS, Lynchburg
The Effect of Cold Stratification on Soybean Germination

**MR NICHOLAS HANDY**
Space: 765 Grade: 7
Valley View Jr HS, Farmersville
Algorithms: Organizing Chaos

**MS EMMA HARDACRE**
Space: 237 Grade: 11
Global Impact STEM Academy, Springfield
Fertilization with Animal Waste

**MR KUSH HARI**
Space: 455 Grade: 10
Upper Sandusky HS, Upper Sandusky
The Development of an Anti-Phishing Chrome Extension

**MS KAITLAN HARLAN**
Space: 145 Grade: 7
Our Lady Of Perpetual Help, Grove City
Which gender is more affected by peer pressure?

**MS ABIGAIL HARRELL**
Space: 1068 Grade: 7
Olentangy Shanahan MS, Lewis Center
Force: Does Skill Level Affect the Amount of Force Used at the Ballet Barre?

**MS MADELINE HARRIS**
Space: 103 Grade: 6
Madison Christian School, Groveport
Stress

**MS MARY HARRIS**
Space: 943 Grade: 11
Mt Vernon HS, Mt Vernon
The Effects of Antibiotics on CCCP Evolved E. Coli

**MR SAMUEL J HARRIS**
Space: 1007 Grade: 12
Fairland HS, Proctorville
Effect of Fluid Shear on the Cytoskeleton of Smooth Muscle Cells

**MS PENOELE HARTLEY**
Space: 522 Grade: 9
Upper Arlington HS, Upper Arlington
Creating an Affordable and Accessible Lead Filter

**MS ELLIANA HARTMAN**
Space: 65 Grade: 7
Mother Teresa Catholic, Liberty Twp
How Lighting Affects Learning

**MS MAYA HARTMAN**
Space: 194 Grade: 11
Patrick Henry HS, Hamler
The Effects of Ethylene on the Ripening Process of the Banana

**MS SARAH HARTWIG**
Space: 986 Grade: 5
St Columban, Loveland
Clean Your Cans a Better Way

**MR CANUTE HAWKINS**
Space: 1152 Grade: 7
Horizon Science Academy, Cincinnati
Comparing Thermal Insulators

**MS CLAIRE HEFFERNAN**
Space: 217 Grade: 8
St Aloysius, Bowling Green
Let It Grow

**MR KEVIN HEIL**
Space: 40 Grade: 8
St Paul, Westerville
Does Gender Affect Multitasking Ability?

**MR ETHAN HEIST**
Space: 1093 Grade: 8
Sycahore JS, Cincinnati
CALAMITY! Motor Oil Lubrication and the Effect on Friction

**MS ABBEY HEITKAMP**
Space: 406 Grade: 5
L T Ball Intermediate ES, Tipp City
Evaluating the Melting Points of Various Frozen Liquids at Room Temperature

**MS MORGAN HEITKAMP**
Space: 1059 Grade: 10
Versailles HS, Versailles
Bowling Ball Cores, Drilling Layouts, and Finishes

**MS EMMA ELIZABETH HELBLING**
Space: 859 Grade: 8
St Michael Consolidated, Ripley
Can an Artificial Pancreas Model Powered by an Electrical Current Mimic Insulin Regulating High Blood Glucose?

**MS KAYLEE HELBLING**
Space: 440 Grade: 5
Hamersville ES, Hamersville
Heat My Rust

**MR SPENCER HELMS**
Space: 803 Grade: 8
St Mary Central, Martins Ferry
Taste and Smell, the Connection?

**MS MIKHAYLA A HENRY**
Space: 701 Grade: 11
Bloom Carroll HS, Carroll
Different Sorbents’ Effectiveness on Diesel Fuel

**MR RYAN HERZIG**
Space: 977 Grade: 6
Terrace Park ES, Terrace Park
Do Soil Microorganisms Affect The Germination and Growth of Soybeans?

**MS KATELYN HIERNAUX**
Space: 161 Grade: 7
Mother Teresa Catholic, Liberty Twp
Can facial expressions give away when someone is lying?
**ROSTER OF STUDENT EXHIBITORS**

**MS HOPE HINGER**
Space: 375 Grade: 7
St Michael, Worthington
Which hot sauce is the most acidic?

**MS STEPHANIE HIRSCH**
Space: 671 Grade: 8
Bishop Flaget, Chillicothe
Can Vinegar Be Used As A Natural Weed Killer?

**MR HAYDEN HISER**
Space: 291 Grade: 5
L T Ball Intermediate ES, Tipp City
Gatorade that is least likely to stain

**MS ABBY HISSONG**
Space: 286 Grade: 11
Milton-Union HS, W Milton
The Effect of Nitrogen on the Growth and Yield of Field Corn

**MR OWEN HOBBS**
Space: 566 Grade: 6
Holy Trinity, Avon
How Does Electricity Protect Your Home?

**MR MARK HODGES**
Space: 1044 Grade: 6
St Lawrence, Ironton
Incredible Insulators

**MR BRYCE HOEHNER**
Space: 246 Grade: 10
Bowling Green HS, Bowling Green
The Effects of Wind Velocity on the Roots of Tomato Plants

**MR WILLIAM HOERSTEN**
Space: 715 Grade: 12
Lehman Catholic HS, Sidney
The Filtration of Dirty Water Through Natural Media

**MS FAYE HOEY**
Space: 660 Grade: 8
Walsh Jesuit, Cuyahoga Falls
H20h No!

**MR OWEN HOBBS**
Space: 251 Grade: 5
L T Ball Intermediate ES, Tipp City
Gatorade that is least likely to stain

**MS ABBY HISSONG**
Space: 1120 Grade: 8
Zane Trace MS, Chillicothe
Pygmy Goat Ultrasonography

**MR ANDREW HOFFMEYER**
Space: 1099 Grade: 12
Marlington HS, Alliance
A Sticky Situation

**MR JACK HOLCOMB**
Space: 536 Grade: 7
Circleville MS, Circleville
Which type of basic truss bridge has the greatest weight bearing capacity?

**MS WANDA HOLDERBY**
Space: 881 Grade: 12
C-Tec HS, Newark
Preemies and Osmolality

**MS COURTNEY HOLLENBACHER**
Space: 865 Grade: 12
Anna HS, Anna
Omega Chicken

**MR NATHAN HOLTY**
Space: 1054 Grade: 9
Dayton Regional STEM School, Kettering
Electromagnetic Propulsion: Revolutionizing Space Exploration

**MS JANE HOMANS**
Space: 2 Grade: 11
Anna HS, Anna
What’s in a Face?

**MS ALEXIS HOOD**
Space: 895 Grade: 5
St Mary Central, Martins Ferry
Cooling or sensation

**MR BRANDON T HODD**
Space: 529 Grade: 7
Tippecanoe MS, Tipp City
Just Weight For It

**MS AUBREE ANN A HOUIN**
Space: 474 Grade: 8
West Holmes MS, Millersburg
Less is More: Examining the Effect of Reduced Planting Rates on Ohio Soybean Yields and Profitability

**MR GARRETT HOUIN**
Space: 477 Grade: 6
West Holmes MS, Millersburg
Gone with the Rain: The Relationship Between Field Management Techniques, Erosion, & Water Retention

**MS ALYSSA Houser**
Space: 1120 Grade: 8
Zane Trace MS, Chillicothe
Pygmy Goat Ultrasonography

**MS MORGAN HUDSON**
Space: 618 Grade: 7
Archbishop Lyke-St Timothy, Garfield Hts
Light Up Your Kitchen!

**MS KAHLA HUDY**
Space: 951 Grade: 10
Hudson HS, Hudson
The Effect of OTC Medications on Acne

**MS LILIANA HUNT**
Space: 486 Grade: 12
Greenview Sr HS, Greenville
Chemical Method of Extracting Fossils

**MR WILLIAM HUNT**
Space: 29 Grade: 6
Columbia MS, Columbia Station
A+ Gaming: Can Computer Games Help Educate Kids?

**MS LINA IKHLEF**
Space: 951 Grade: 10
Hudson HS, Hudson
The Effect of OTC Medications on Acne

**MS SANYA IKRAMUDDIN**
Space: 479 Grade: 7
Dayton Islamic School, Beavercreek
Soil Nutrients and Conductivity

**MR PRESTON NGOL**
Space: 905 Grade: 12
Paulding HS, Paulding
The Effects of Breathing Exercises on the Ability to Hold a Pitch

**MS LUCY INGRAM**
Space: 630 Grade: 5
New Albany 2-5 ES, New Albany
How Does the Tilt of Solar Panels Affect a Solar Car?
SPONSORED AWARD JUDGES
should enter Northwest Doors 4A

REGULAR JUDGES should enter
Northeast Doors 12A

ACADEMY JUDGES should sit in
sections 13A and 14A

CONTINENTAL BREAKFAST
(Judges Only) Stands 4A and 12A,
6:45 AM - 9:00 AM
Rana Abuhashim, pictured above, has gained that real-world experience through a co-op with Goodyear, and currently works at the Youngstown Business Incubator assembling 3D printers.

The STEM college at Youngstown State is engineering the future. Working alongside accomplished faculty, students get real-world experience by using cutting edge technology in the classroom.

Begin your STEM career by visiting stem.ysu.edu

With accelerated degree partnerships in nursing, pharmacy, physician assistant studies and more, you’ll be on your way to a career in healthcare.

lecs.edu/pathwaystohealthsciences
<table>
<thead>
<tr>
<th>Name</th>
<th>Space</th>
<th>Grade</th>
<th>Location, City</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS MADELINE IRVING</td>
<td>921</td>
<td>7</td>
<td>Bunsold MS, Marysville</td>
<td>Natural Versus Man-Made Sanitizers</td>
</tr>
<tr>
<td>MS MADISON ISAAC</td>
<td>87</td>
<td>10</td>
<td>Notre Dame Jr/Sr HS, Portsmouth</td>
<td>Acute Stress isn’t Cute</td>
</tr>
<tr>
<td>MS MORGAN ISLA</td>
<td>114</td>
<td>7</td>
<td>Oakwood MS, Canton</td>
<td>Does brand affect taste?</td>
</tr>
<tr>
<td>MS LOGA IYER</td>
<td>362</td>
<td>10</td>
<td>Mason MS, Mason</td>
<td>Electrolyte Investigation</td>
</tr>
<tr>
<td>MS SHIKHA IYER</td>
<td>395</td>
<td>6</td>
<td>New Albany MS, New Albany</td>
<td>The Best Ingredients to Create a Moisture Barrier</td>
</tr>
<tr>
<td>MS MARLEY JACKSON</td>
<td>141</td>
<td>8</td>
<td>St Paul, Westerville</td>
<td>Does Gender Affect the Amount of Time it takes to Read Aloud Worped Words with the Stroop Effect?</td>
</tr>
<tr>
<td>MS NATHAN JACKSON</td>
<td>615</td>
<td>9</td>
<td>Black River HS, Sullivan</td>
<td>Effect of Crumple Size on Peak Force During Impact</td>
</tr>
<tr>
<td>MS VICTORIA JACOBS</td>
<td>718</td>
<td>10</td>
<td>Tippecanoe HS, Tipp City</td>
<td>Pollution in the Great Miami River</td>
</tr>
<tr>
<td>MS ADDISON JAMES</td>
<td>74</td>
<td>7</td>
<td>Mother Teresa Catholic, Liberty Twp</td>
<td>Do Students Learn Better by Typing or Writing?</td>
</tr>
<tr>
<td>MS OLIVIA JANLO</td>
<td>950</td>
<td>11</td>
<td>St Vincent St Mary, Akron</td>
<td>The Effects of Varying Surfaces on Bacteria Growth</td>
</tr>
<tr>
<td>MS CLARA JANOW</td>
<td>944</td>
<td>8</td>
<td>Buckeye Valley Local MS, Delaware</td>
<td>pH vs. Bacteria</td>
</tr>
<tr>
<td>MR SAFWAN JAWEED</td>
<td>931</td>
<td>8</td>
<td>International Academy of Cincinnati, West Chester</td>
<td>Which food is the most antibacterial: garlic, honey, or cinnamon?</td>
</tr>
<tr>
<td>MR NIPUN JAYATISSA</td>
<td>513</td>
<td>10</td>
<td>Maumee Valley Country Day, Toledo</td>
<td>Engineering and Evaluation of 3D Printed Polymer Scaffolds for Bone Tissue Regeneration</td>
</tr>
<tr>
<td>MS HAYLEY JESSE</td>
<td>1015</td>
<td>10</td>
<td>Carroll HS, Dayton</td>
<td>Optimizing Thrust Produced by Propeller Blades with Dimpled Surfaces</td>
</tr>
<tr>
<td>MS MIKAYLA JETTE</td>
<td>348</td>
<td>9</td>
<td>St Christopher, Vandalia</td>
<td>Does Music Affect Short Term Memory?</td>
</tr>
<tr>
<td>MR ZUBIN JHA</td>
<td>348</td>
<td>9</td>
<td>Thomas Worthington HS, Worthington</td>
<td>Banana Ripening: What Works Best?</td>
</tr>
<tr>
<td>MR PRESTON M JOHANNS</td>
<td>925</td>
<td>12</td>
<td>Paulding HS, Paulding</td>
<td>The Effects of Orange, Lemon, Grape and Apple Juice on Tetryocline</td>
</tr>
<tr>
<td>MS CAROLINE JOHNSON</td>
<td>341</td>
<td>10</td>
<td>Hudson HS, Hudson</td>
<td>The Science Behind a Cold Pack</td>
</tr>
<tr>
<td>MS IAN JOHNSON</td>
<td>557</td>
<td>6</td>
<td>Bloom Carroll MS, Carroll</td>
<td>Are Your Eyes Playing Tricks On You?</td>
</tr>
<tr>
<td>MS MILLIE JOHNSON</td>
<td>51</td>
<td>7</td>
<td>Our Lady Of Perpetual Help, Grove City</td>
<td>Can you recall...?</td>
</tr>
<tr>
<td>MS ABIGAIL LYNN JONES</td>
<td>652</td>
<td>11</td>
<td>Lehman Catholic HS, Sidney</td>
<td>The Effects of P. Ostreatus on the Biosorption of Petroleum Polluted Water</td>
</tr>
<tr>
<td>MS BRAYLIE JONES</td>
<td>86</td>
<td>8</td>
<td>North Adams HS, Seaman</td>
<td>Let’s Remember</td>
</tr>
<tr>
<td>MS DANIELLE JONES</td>
<td>308</td>
<td>9</td>
<td>Circleville MS, Circleville</td>
<td>What type of liquid dissolves medication the quickest?</td>
</tr>
<tr>
<td>MS LILLIAN JONES</td>
<td>360</td>
<td>8</td>
<td>Walnut Hills HS, Cincinnati</td>
<td>Biofuels and their effects on an Oil Lantern</td>
</tr>
<tr>
<td>MS LYNDSEY JONES</td>
<td>193</td>
<td>9</td>
<td>Lehman Catholic HS, Sidney</td>
<td>The Effects of Oxygen on Yeast Metabolism</td>
</tr>
<tr>
<td>MR THOMAS JUNKER</td>
<td>1117</td>
<td>9</td>
<td>Bishop Leibold E &amp; W Campus, Dayton</td>
<td>The Effect of Truss Design on a Bridge’s Strength</td>
</tr>
<tr>
<td>MS CARLY JUSTICE</td>
<td>531</td>
<td>10</td>
<td>Firestone HS, Akron</td>
<td>Traffic Safety: Best Retroreflective Colors for Elderly Drivers</td>
</tr>
<tr>
<td>MS ISABELLA JUSTICE</td>
<td>464</td>
<td>7</td>
<td>River View MS, Warsaw</td>
<td>Skyglow: The Effects Of Light Pollution On Stargazing</td>
</tr>
<tr>
<td>MR Reece Kackley</td>
<td>1095</td>
<td>10</td>
<td>Marlinton HS, Alliance</td>
<td>A Sticky Situation</td>
</tr>
<tr>
<td>MS RACHEL KAHLER</td>
<td>465</td>
<td>10</td>
<td>Bellbrook HS, Bellbrook</td>
<td>Martian Storm Severity Scale</td>
</tr>
<tr>
<td>MS ANNA KALKA</td>
<td>28</td>
<td>6</td>
<td>St Francis Xavier, Medina</td>
<td>The Effect of Symmetry on the Rating of Facial Attractiveness</td>
</tr>
<tr>
<td>MR Jack Kalnicki</td>
<td>769</td>
<td>7</td>
<td>Village Academy, Powell</td>
<td>Is There a Mathematical Way to Show Black Absorbs More Heat Than Lighter Colors</td>
</tr>
<tr>
<td>MS DEBASMITA KANUNGO</td>
<td>79</td>
<td>9</td>
<td>Sycamore HS, Cincinnati</td>
<td>Melodic Memory</td>
</tr>
<tr>
<td>MS ALLISON KAPOSTASY</td>
<td>265</td>
<td>11</td>
<td>Turpin HS, Cincinnati</td>
<td>Effects of pH Contamination Prior to Planting on Soybean Germination and Growth</td>
</tr>
<tr>
<td>MS BELA KARAJAGI</td>
<td>211</td>
<td>7</td>
<td>Mason MS, Mason</td>
<td>Skinny on Moisturizers</td>
</tr>
<tr>
<td>MS JINAL KARANI</td>
<td>160</td>
<td>9</td>
<td>William Mason HS, Mason</td>
<td>Battle of the Ages (Social Conformity between adults and teens)</td>
</tr>
<tr>
<td>MS KATY KASER</td>
<td>179</td>
<td>8</td>
<td>Guardian Angels, Cincinnati</td>
<td>Bacteria at school</td>
</tr>
</tbody>
</table>
MR ROHIT K KATARIA
Space: 834 Grade: 9
Wheelersburg HS, Wheelersburg
Overuse of Proton Pump Inhibitors

MS SERENA KATARIA
Space: 8 Grade: 7
Wheelersburg MS, Wheelersburg
Self-Esteem: Shortage or Surplus

MS SUKHMANI KAUR
Space: 822 Grade: 11
Hathaway Brown, Shaker Hts
Derived Mesenchymal Stem Cells

MR HUNTER KAUSER
Space: 1028 Grade: 8
Paulding MS, Paulding
Does the Material Properties Affect Distance Traveled?

MS VAISHNAVI KAVOORI
Space: 189 Grade: 7
Wheelersburg HS, Wheelersburg
UV Ray’s affect on yeast

MS ROSEMARY KAY
Space: 420 Grade: 7
Immaculate Conception, Columbus
Acid Rain- What a Pain!

MS EMMA KEALY
Space: 200 Grade: 7
Walsh Jesuit, Cuyahoga Falls
Too Much Fun in the Sun

MS HANNAH KEGLEY
Space: 338 Grade: 6
Holy Trinity, Avon
The Best Substance for Cleaning Pennies

MS WILLOW KENNEDA
Space: 711 Grade: 9
Williamsburg HS, Williamsburg
Effect of Nanotechnology on Daphnia

MS ALISON KENNEDY
Space: 521 Grade: 12
Mentor HS, Mentor
Evaluating the Effects of Plasma Functionalization on Carbon Nanotube Reinforced Polycarbonate Composites for a Possible Increase in Adhesion

MS OLIVIA KENNEDY
Space: 214 Grade: 7
Jackson MS, Jackson
Mold Growth on Oranges

MR PATRICK KENNEY
Space: 1085 Grade: 7
St Mary, Lancaster
How Does the Loft of the Golf Club Effect the Distance the Ball Travels?

MS ELIZABETH KENT
Space: 872 Grade: 6
St Anselm, Chesterland
Does Coconut Oil Kill Streptococcus mutans?

MR ROBERT KENT
Space: 728 Grade: 8
St Anselm, Chesterland
Are Microplastic Contaminants More Abundant in Farm Raised or Wild Clams?

MS ADDIE KERN
Space: 261 Grade: 7
St Andrew/St Elizabeth A Seton, Milford
Go Bananas For Science

MS MEGHAN KESSINGER
Space: 729 Grade: 10
Beaumont School, Cleveland Hts
“Ooh Gee, Look At All That Algae!”

MR GAVIN KESTERSON
Space: 1087 Grade: 6
Horizon Science Academy, Columbus
Which Natural Teeth Whitening Substance Has The Most Effect On Teeth Compared To Existing Methods?

MS MEGAN KETNER
Space: 735 Grade: 8
Beaumont School, Cleveland Hts
Phosphorus Contamination in the Blanchard River

MR ADAM KHAN
Space: 1114 Grade: 5
O H Somers ES, Mogadore
Automatic Cat Feeder

MS DIKCHHYA KHATIWODA
Space: 813 Grade: 9
St Jude, Elyria
Shake Science-What Building Design can withstand an earthquake?

MS SARAH LENA KIKEL
Space: 704 Grade: 11
St Raphael, Bay Village
The Effect of Salt on the Flow Rate of Water Through a Magnetic Field

MR ANDREW KLEIN
Space: 1048 Grade: 7
St Raphael, Bay Village
The Study of Golf Ball Performance at Various Price Points

MS ALIVIA KNORR-SULLIVAN
Space: 10 Grade: 9
Piqua HS, Piqua
Stroop Effect

MR ETHAN KOEHLER
Space: 140 Grade: 7
Miller South Perf Visual & Arts School, Akron
The Importance Of Bee Education
ROSTER OF STUDENT EXHIBITORS

MS ELIZABETH KOETH
Space: 417 Grade: 8
St Raphael, Bay Village
How Borax Affects the Viscosity of a Glue and Water Mixture

MR PHILIP KOGAN
Space: 518 Grade: 8
Walnut Hills HS, Cincinnati
The Effect of Microwave Oven Radiation on Yeast Cell Growth

MR JOE KOLWICZ
Space: 4 Grade: 7
Kilbourne MS, Worthington
Distracted Driving

MR LUKE KOMAREK
Space: 694 Grade: 10
Bishop Fenwick, Franklin
Aquaponic Agriculture and Fertilization Versus Conventional Agriculture and Fertilization

MR MATTHEW KOON
Space: 466 Grade: 6
Newton ES, Pleasant Hill
Gases versus Climate

MS KATHERINE KOONTZ
Space: 1138 Grade: 10
Northwestern HS, W Salem
Ability to Extract DNA from a Rabbit Buccal Swab Using Common Household Supplies

MR MATTHEW KORVER
Space: 593 Grade: 8
Geneva JS, Geneva
A Quick Charge?

MR ADEEL KOSHAL
Space: 643 Grade: 9
Athens HS, The Plains
The Difference Between Attended And Unattended Blood Pressure

MS KAITLYN LANCIA
Space: 1133 Grade: 7
St Cecilia, Columbus
How do cats react to different smells?

MS CHARLOTTE LACROSSE
Space: 753 Grade: 7
Mother Teresa Catholic, Liberty Twp
The Effect of a Heavy Metal on Aquatic Environments

MR CHRISTOPHER KRUPKA
Space: 1124 Grade: 7
St Peter, N Ridgeville
Does the amount of light change the number of eggs laid?

MS ANNA M KRUSE
Space: 880 Grade: 11
Bloom Carroll HS, Carroll
Monosodium Glutamate: A Ligand for mGluRs, Inducing Microtubule Depolymerization and Alzheimer’s Disease?

MS EMILY A KRUSE
Space: 277 Grade: 8
Bloom Carroll MS, Carroll
Mycorrhizal Fungi Alleviating Drought Stress

MS GRACE KRUSE
Space: 53 Grade: 6
Bloom Carroll MS, Carroll
Electronic Media vs. Paper: The Effect on Students Reading Comprehension

MR JOSEPH D KRUSE
Space: 744 Grade: 10
Bloom Carroll HS, Carroll
Salicylic Acid’s Effect on Triticum aestivum During Drought Stress

MS LINDSEY KULP
Space: 705 Grade: 10
West Geauga HS, Chesterland
The Effects of Chemical De-Icing Agents on the Germination Mechanisms of Rudbeckia hirta

MR PRAVEEN KUMAR
Space: 622 Grade: 7
Birchwood School, Cleveland
How do the angles and speeds of wind received by different kinds of blades affect the amount of volts of energy produced?

MS CHARLOTTE KUNESH
Space: 935 Grade: 9
Archbishop Alter HS, Kettering
The Effect of Antibiotic Classes on Common Bacteria

MS FAITH KURTZ
Space: 878 Grade: 10
Thomas Worthington HS, Worthington
Teas Effects on Life

MS GRACE LACH
Space: 962 Grade: 11
Bloom Carroll HS, Carroll
The Effect of Fat Content of Ground Beef on Microorganism Growth

MR ROY LANGHALS
Space: 926 Grade: 7
Trotwood-Madison HS, Trotwood
The Effects of Expectation on Experience

MR ROY LANGHALS
Space: 419 Grade: 7
St Anthony of Padua, Columbus Grove
Powerful Nuts

MS KAITLYN LANCIA
Space: 1133 Grade: 7
St Cecilia, Columbus
How do cats react to different smells?

MS ABIGAIL LANDSKROENER
Space: 329 Grade: 8
Trinity Lutheran, Toledo
The Yeast Effect

MS ERICA LANGAN
Space: 238 Grade: 11
Turpin HS, Cincinnati
Effects of Calcium Carbonate and Potassium Carbonate Buffers on Reducing the Impact of Simulated Acid Rain on “Glycine max”

MS MACKENZIE LANGHALS
Space: 419 Grade: 7
St Anthony of Padua, Columbus Grove
Powerful Nuts

MS MEGAN LAPP
Space: 151 Grade: 7
St Charles Borromeo, Kettering
Which Cookies

MS KATE KRISMANTH
Space: 550 Grade: 8
St Hilary, Fairlawn
Bendy Bandages

MS CLARA KROHN
Space: 554 Grade: 8
St Hilary, Fairlawn
Rotating Bench

MS MARLEE KROLL
Space: 836 Grade: 8
St Paul, Westerville
The Effect of Eye Color on Vision

MS KELLEY LACH
Space: 1134 Grade: 9
Bloom Carroll HS, Carroll
The Effect of Caffeine on the Heart Rate of Daphnia magna

MS CRYSTA LACROSSE
Space: 753 Grade: 7
Mother Teresa Catholic, Liberty Twp
The Effect of Water Depth on Tsunami Wave Velocity

MS CARLY LAKE
Space: 489 Grade: 5
Worthington ES, Chillicothe
The Effect of Onset on Water Depth of Tsunami Wave Velocity

MR VIGNESH R LALGUDI
Space: 202 Grade: 10
Metro Early College HS, Columbus
Development of TRPV1 Agonist using Fatty-Modified Curcumin

MS KAITLYN LANCIA
Space: 1133 Grade: 7
St Cecilia, Columbus
How do cats react to different smells?

MS ABIGAIL LANDSKROENER
Space: 329 Grade: 6
Trinity Lutheran, Toledo
The Yeast Effect

MS ERICA LANGAN
Space: 238 Grade: 11
Turpin HS, Cincinnati
Effects of Calcium Carbonate and Potassium Carbonate Buffers on Reducing the Impact of Simulated Acid Rain on “Glycine max”

MS MACKENZIE LANGHALS
Space: 419 Grade: 7
St Anthony of Padua, Columbus Grove
Powerful Nuts
Chromatography: Are dyes in household food coloring the same as dyes in commercial M&M candy coatings?

We Will Rise: The Effect of Fermentation on the Weight of Bread after Being Cooked

Infected iPhones

The Effectiveness of Oregano Oil in Treating Ostertagia ostertagi

Our Lady Of Perpetual Help, Grove City
Brush Up!

Soil Type Vs. Plant Growth

Effect of Soil Type on Bearing Capacity

Self-Designed Childproof Container

How Many Milliliters of Water Will Increase a Water Bottle Rocket's Altitude the Most?

Hydroponics: Soil Not Included

Bacteria rocks

Do Shapes Have Sounds? The Bouba-Kiki Effect

The Dirt on Phones

The Effect of Fermentation on Bacterial Growth

Do people feel like they are being watched?

Epigenetic Effects of Car Exhaust in Drosophila melanogaster

You're Killing Me Copper

Do GMOs hiding in your snacks?

The Effect of Fermentation on Bacterial Growth

How Do Winter Roads Affect Our Vehicles?

Is Ross County Water Chlorine Percentage Consistent?

Impacts on Impactors

Are GMOS hiding in your snacks?

The Effect of Fermentation on Bacterial Growth

How Do Winter Roads Affect Our Vehicles?

You're Killing Me Copper

Do Shapes Have Sounds? The Bouba-Kiki Effect
ROSTER OF STUDENT EXHIBITORS

MS VERONICA LYNCH
Space: 343 Grade: 7
St Joseph, Cuyahoga Falls
What is the True Color

MS SUZANNE L YONS
Space: 579 Grade: 8
St Peter, Huber Hts
Will A Robot Be Able To Navigate Its Way Through Three Simple Mazes?

MR LEONARDO MACIEL
Space: 776 Grade: 11
Horizon Science Academy, Lorain
Assessing the EMR Interference With the Functionality of the Blood Brain Barrier

MR CURTIS MACKEY
Space: 519 Grade: 10
Carroll HS, Dayton
Effects of Spin Produced by Angled Fins on Rocket Performance

MS ANNA MACLENNAN
Space: 583 Grade: 8
Nagel MS, Cincinnati
The Wearable Camera

MS UMAYNA MAGSI
Space: 807 Grade: 6
Toledo Islamic Academy, Sylvania
Does Sugar Affect the pH of Saliva?

MR AUSTIN MAGUIRE
Space: 444 Grade: 12
West Geauga HS, Chesterland
Access Denied

MS EMMA MAINORD
Space: 889 Grade: 6
Charles Huber ES, Huber Hts
Sugar Shock

MR OWEN MAJOR
Space: 67 Grade: 8
Bishop Leibold E & W Campus, Dayton
Coloring Your Mind

MS HARISIMRAN MAKKAD
Space: 858 Grade: 11
Sycamore HS, Cincinnati
Modeling Transcription Factors

MS YSABELLA MALAYA
Space: 821 Grade: 8
Lake Ridge Academy, N Ridgeville
At Yeast They’re Dead

MS KAITLYN MALEY
Space: 83 Grade: 10
Marlington HS, Alliance
Effect of Stress on Memory

MS AKANKSHA MALHOTRA
Space: 763 Grade: 12
Dublin Coffman HS, Dublin
ME2 Expression is associated with Epilepsy

MR CONNOR MALICKI
Space: 566 Grade: 6
Holy Trinity, Avon
How Does Electricity Protect Your Home?

MR RAAGHAV MALIK
Space: 249 Grade: 7
Village Academy, Powell
The Effect of Magnetic Fields on the Growth of Radishes

MR MARK MALKIN
Space: 455 Grade: 11
Upper Sandusky HS, Upper Sandusky
The Development of an Anti-Phishing Chrome Extension

MR ANASTASIOS A MANGANARIS
Space: 862 Grade: 10
Anderson HS, Cincinnati
What is the Mass of a Charmed Lambda+ Baryon?

MS GRACE MANGOLD
Space: 158 Grade: 8
Incarnation, Centerville
Are You Secure?

MR ARNAV MANTRO
Space: 638 Grade: 8
Mason MS, Mason
Thermo-Electric Flashlight

MR ADNAN MAOLOOD
Space: 940 Grade: 9
Toledo Islamic Academy, Sylvania
Are Essential Oils More Effective Than Antibiotics at Inhibiting Bacterial Growth?

MS BAYLEE MARIE MARCH
Space: 906 Grade: 8
Paulding MS, Paulding
How does Frustration Affect Heart Rate?

MR DANIEL MARINO
Space: 549 Grade: 8
St Mary, Delaware
Which common insulator retains heat most effectively?

MS MADALYN MARSENGILL
Space: 867 Grade: 10
Sylvania Southview HS, Sylvania
The Use of Essential Oils on Fruit Preservation

MS CASEY MARSHALL
Space: 209 Grade: 8
St Thomas More, Cincinnati
How to Get Away With Murder

MR ALEXANDER MARTIN
Space: 379 Grade: 7
Incarnation, Centerville
Washer vs. Corrosion

MR PATRICK MARTIN
Space: 338 Grade: 6
Holy Trinity, Avon
The Best Substance for Cleaning Pennies

MR ALEXANDER MASSIER
Space: 569 Grade: 8
Birchwood School, Cleveland
Windmill Design: Factors That Affect Windmill Efficiency

MR ARMANDO MASTROPIETRO
Space: 1082 Grade: 7
East Community Learning Center, Akron
Does chemical lighting effect the structure of human hair?

MS JULIA MAUGER
Space: 142 Grade: 8
St Paul, Westerville
The Effect of Music on the Interpretation of a Visual Scene

MR ALEXANDER MARTIN
Space: 379 Grade: 7
Incarnation, Centerville
Washer vs. Corrosion

MS GRACE MAY
Space: 1104 Grade: 8
St Paul, N Canton
Golf Ball Performance

MR MATTHEW MAYHAN
Space: 1006 Grade: 7
Catholic Central JS/HS, Springfield
Low or High, Small or Wide: Does Height Matter When it Comes to Spatter?

MS DAYTON MAYLE
Space: 471 Grade: 6
East Richland Christian School, St Clairsville
Measuring UV Index

MS GRACE MAYVILLE
Space: 332 Grade: 6
St Vincent de Paul, Mt Vernon
Water Hardness

MR BRANDON MAZZEI
Space: 8 Grade: 10
Alliance HS, Alliance
Texting: A Habit More Dangerous Than You Think

MS HANNA MAZZEI
Space: 431 Grade: 7
Alliance MS, Alliance
Temperature’s Affect On The Efficiency of a Fuel Cell
ROSTER OF STUDENT EXHIBITORS

MS SIENA MICALIST
Space: 573 Grade: 5
Wilson Hill ES, Worthington
Conducting Electricity

MR ZACHARY MCANDREW
Space: 104 Grade: 7
Our Lady Of Perpetual Help, Grove City
Does different types of music effect typing speed?

MS KATHERINE MCCALLUM
Space: 1005 Grade: 5
Allen ES, Chillicothe
Does temperature affect a tennis balls bounce?

MR JAKE MCCARTHY
Space: 1098 Grade: 7
Athens MS, Athens
The Science behind the Glide of a Hockey Puck

MS MARY MCCASTLE
Space: 33 Grade: 8
Walsh Jesuit, Cuyahoga Falls
Can You Tell the Difference?

MR JAMISON MCCLANAHAN
Space: 641 Grade: 12
West Union HS, West Union
The Effects of Torsion

MR JAMES E MCCLURE
Space: 936 Grade: 12
Versailles HS, Versailles
The Effects of Fat on the Growth and Nitrogen Fixation of Diazotrophs

MR TOM MCCONVILLE
Space: 1048 Grade: 7
St Raphael, Bay Village
Effect of Crumple Size on Peak Force During Impact

MS BRITTON MCCOY
Space: 311 Grade: 7
River View MS, Warsaw
Animal Bedding... Dryness Matters

MS MAKENNA MCCOY
Space: 421 Grade: 7
Immaculate Conception, Columbus
What is the Best Spray Paint Removal Method (Graffiti Challenge)

MR JESSE MCCULLOUGH
Space: 64 Grade: 12
Northwestern HS, W Salem
The Washroom Warden

MR WILLIAM D MCDANIEL
Space: 322 Grade: 8
Geneva JS, Geneva
What’s Clogging Your Toilet?

MS MADISON MCDONALD
Space: 290 Grade: 6
Zane Trace MS, Chillicothe
Preserving Strawberries

MR PATRICK L MCFARLAND
Space: 298 Grade: 12
St Vincent St Mary, Akron
Supra Macromolecular Cages Self Assembled by Terpyridine Based Ligands

MR CADE R MCGARVEY
Space: 223 Grade: 11
Paulding HS, Paulding
The Effects of Foods with High Fructose Corn Syrup and Sucrose on Mus musculus Mass, Blood Glucose Levels, and Body Fat

MS KATHERINE MCGRATH
Space: 853 Grade: 7
St Agatha, Columbus
How Does Music Affect Your Blood Pressure?

MS KATHERINE MCGREAL
Space: 824 Grade: 11
Beaumont School, Cleveland Hts
Evaluating Pulmonary Function Testing Results and Their Impact on Postoperative Outcomes

MS MADISON & MCGUIRE
Space: 640 Grade: 12
Glen Oak HS, Canton
Can a Parabolic Mirror Power a Steam Turbine

MS WINNIE MCKAHAN
Space: 1128 Grade: 9
Thomas Worthington HS, Worthington
The Study of Teddly Bear Hornster Senses

MR DEVON MCLEAN
Space: 615 Grade: 9
Black River HS, Sullivan
Effect of Crumple Size on Peak Force During Impact

MR MAXWELL MCLEOD
Space: 18 Grade: 8
St Mary, Delaware
How do different genres of music affect test taking?

MS MADELEINE MCLAUGHLIN
Space: 334 Grade: 6
Holy Trinity, Avon
How Moisturizing Is Your Moisturizer?

MR NATE MCMANUS
Space: 104 Grade: 6
Bishop John King Mussio Central JS, Steubenville
Does the Potential Energy in a Peanut Heat Water?

MR AIDEN MCMLLON
Space: 493 Grade: 5
East Richland Christian School, St Clairsville
Comparison of the length of time a model house can remain standing during a simulated earthquake

MS MADELINE MCMANAMA
Space: 955 Grade: 7
St Michael, Worthington
Do some containers prevent mold on strawberries longer than others?

MR CONNOR MCNULTY
Space: 319 Grade: 7
Canton Country Day, Canton
Battle of Strengths

MS KIERA MCPECK
Space: 378 Grade: 6
Keene ES, Keene
Catalysts & Exothermic Reactions: Which One Gives Off The Most Heat?

MS JESSICA MCMILLAN
Space: 130 Grade: 9
Pettyville HS, Pettisville
Survey of Female Athletes Knowledge and Choices of “Dairy” Drinks

MR TOMMY MCMILLAN
Space: 494 Grade: 8
Pettisville HS, Pettisville
The Effect of Weight Location on a Pinewood Derby Car

MR LUKA MEDVEDOVIC
Space: 449 Grade: 8
Walnut Hills HS, Cincinnati
Analyzing Internet Speed at Different Times of Day

MS RHEA MEHTA
Space: 208 Grade: 8
Mason MS, Mason
Denaturing Proteins

MR SAMUEL MEISTER
Space: 560 Grade: 6
North Canton MS, N Canton
Lockerbots

MR ANTONY MELEM
Space: 107 Grade: 6
St John, Marietta
What is the Most Common Fingerprint?

MR ANS TIM MENART
Space: 636 Grade: 11
Carroll HS, Dayton
Increased Tidal Barrage Energy Output through Pumping

MS MAANASA MENDU
Space: 585 Grade: 9
William Mason HS, Mason
Developing a Novel Aero-elastic Flutter based Energy Harvester (AERO)

MR ANAS MEREB
Space: 686 Grade: 5
Sunrise Academy, Hilliard
Effective and Cheap Absorbents for Engine Oil and Crude Oil

MR HARRISON MERLING
Space: 686 Grade: 11
Carroll HS, Dayton
Inhibition of Cyanobacterial Growth through Nutrient Limitation
MS JORDYN MERRIMAN  
Space: 289 Grade: 9  
Paulding HS, Paulding  
Will Adding Compost Increase Soybean Growth

MS KATHRYN MERTENS  
Space: 126 Grade: 11  
Sylvania Northview HS, Sylvania  
How Perception of a Teenager's Lifestyle Affects Strangers' Willingness to Help Them

MR DECLAN MESSNER  
Space: 99 Grade: 8  
St Francis Xavier, Medina  
Can Fish Learn to Decipher Shapes Using Operant Conditioning?

MS LILLIAN METZGER  
Space: 257 Grade: 8  
St Paul, Westerville  
The Effect of Sunscreen on Plant Growth

MS ALAINA CRISTINE METZLER  
Space: 1045 Grade: 8  
Geneva JS, Geneva  
Who Can Resist Conductivity? Part III: A Study Of Thermal Conductivity

MS HANNAH MEYER  
Space: 564 Grade: 9  
Patrick Henry HS, Hamler  
Wattage, Heat, and Light output of CFL, Incandescent, LED, and Halogen Lightbulbs

MR ALEXANDER MICHALEC  
Space: 102 Grade: 8  
St Paul, Westerville  
The Effect of Age and Gender on Instant Gratification

MS ALAINA CRISTINE METZLER  
Space: 1045 Grade: 8  
Geneva JS, Geneva  
Who Can Resist Conductivity? Part III: A Study Of Thermal Conductivity

MS KATHRYN MIERZEJEWSKI  
Space: 1128 Grade: 9  
Thomas Worthington HS, Worthington  
The Study of Teddy Bear Hamster Senses

MS SAYA MIETH  
Space: 778 Grade: 12  
Metro Early College HS, Columbus  
Maternal Obesity Induces Deficits in Lung Development Through Increased PTP1B Expression

MS JANE MILLER  
Space: 216 Grade: 7  
Alliance MS, Alliance  
What laundry detergent has the strongest enzymes?

MR GRAHAM MILLIGAN  
Space: 676 Grade: 7  
DeColores Montessori, Greenville  
Soil Erosion

MS NATALIE MILLIGAN  
Space: 1140 Grade: 9  
Greenville Sr HS, Greenville  
The Dust Output of Rabbit Bedding

MS HEATHER MILLIRON  
Space: 153 Grade: 10  
Global Impact STEM Academy, Springfield  
Does Fruit Taste Better When Told it was Grown Locally

MR ANDREW MINNICH  
Space: 599 Grade: 8  
Sacred Heart of Jesus, Wadsworth  
Soaking Up Science

MS ALLISON DREW MIZER  
Space: 967 Grade: 7  
River View MS, Warsaw  
Household Cleaners: Effects on Bacterial Growth

MR AAMIR MOHAMMED  
Space: 1011 Grade: 6  
Toledo Islamic Academy, Sylvania  
Electrical Conductivity of Solutions

MR SIDDAARTH MOHAN  
Space: 791 Grade: 9  
Dublin Jerome HS, Dublin  
Will Soy Protein be an effective Filtration Method to Chemically Adsorb Aldehydes?

MS AMELIA MOLL  
Space: 678 Grade: 7  
Sacred Heart of Jesus, Wadsworth  
Get a Grip!

MS STEPHANIE MONCALEANO  
Space: 13 Grade: 8  
Hilltop HS, West Unity  
Does Color Affect Memorization?

MR DANIEL MONEA  
Space: 1027 Grade: 8  
St Hilary, Fairlawn  
Corresponding Colors with Flavors

MS CRYSTAL MONTGOMERY  
Space: 396 Grade: 6  
Keene ES, Keene  
The Burger Queen

MS GRACE MOON  
Space: 271 Grade: 7  
Geneva JS, Geneva  
It's A-Drought Time for Soybeans

MR JJ MUCCI  
Space: 116 Grade: 8  
Oakwood MS, Canton  
What angle on the basketball court has the best percentage of going in?

MS KAITLYN MORGAN  
Space: 408 Grade: 6  
St Ignatius Loyola, Cincinnati  
Humans vs. Artificial Neural Networks

MS MACKENZIE MORGAN  
Space: 866 Grade: 10  
Troy HS, Troy  
Moisturizers

MR TYLER MORR  
Space: 644 Grade: 12  
Northwestern HS, W Salem  
The Washroom Warden

MS LAINIE MOSS  
Space: 209 Grade: 8  
St Thomas More, Cincinnati  
How to Get Away With Murder

MS KATHRYN MOWERY  
Space: 260 Grade: 5  
Emerson ES, Westerville  
Soybeans with Additonal Wind

MR JJ MUCCI  
Space: 116 Grade: 8  
Oakwood MS, Canton  
What angle on the basketball court has the best percentage of going in?
MR CONNER P MULLINS
Space: 682 Grade: 10
Hudson HS, Hudson
The Effect of Aquaponics on Plants

MS SWETHA MULUKUTLA
Space: 587 Grade: 8
Mason MS, Mason
Smart Cane

MR HARI MURALI
Space: 212 Grade: 6
Sycamore HS, Cincinnati
Studying the Effect of Fenugreek on the Carbohydrate Metabolism in Yeast

MS MAUREEN MURPHY
Space: 964 Grade: 7
St Mary, Lancaster
The Waterbourne Supremacy

MR ALEXANDER MURRAY
Space: 199 Grade: 11
Mentor HS, Mentor
False Positives of Blood

MS MARY GRACE MURRAY
Space: 530 Grade: 10
Olentangy HS, Lewis Center
Enhancing Accessible Pedestrian Signals: Using Tactile Maps

MS KAAVIYA MURUGANANTHAM
Space: 774 Grade: 9
William Mason HS, Mason
The Birthday Paradox

MS EMMA NOFFSINGER
Space: 700 Grade: 8
Roswell Kent MS, Akron
The Affects of pH and Rainfall Upon Biodegradable Trash Bags and Brown Paper Trash Bags: A Global Study

MR AJAI NELSON
Space: 442 Grade: 8
Walnut Hills HS, Cincinnati
Machine Learning: Discriminating Human- Versus Computer-Generated Random Numbers

MR JUSTIN J NELSON
Space: 908 Grade: 11
Dublin Coffman HS, Dublin
Exposure to Light at Night Causes Cognitive Deficits

MR JOHN NIEZGODA
Space: 1072 Grade: 8
St Michael, Independence
Optimal Mass and Angle for Air Rocket Launching

MR AJ NOEL
Space: 713 Grade: 5
Chillicothe MS, Chillicothe
Can WiFi Signal affect the growth of plants?

MS ISABELA NGUYEN
Space: 154 Grade: 9
Dayton Regional STEM School, Kettering
Marcookting

MR DALTON MYERS
Space: 668 Grade: 9
Pettisville HS, Pettisville
A Comparison of Various Conductive Tubing Used in a Solar Water Heater

MS LAUREN NIEPORTE
Space: 169 Grade: 7
Oakwood MS, Canton
Do Students Test Better Online or On Paper?

MS AYUSHE NAGPAL
Space: 695 Grade: 8
Mason MS, Mason
Energy from Food Waste

MR ATNEYA S NAIR
Space: 447 Grade: 11
William Mason HS, Mason
Developing a machine learning model to prognose breast cancer utilizing sequencing data

MS ANNA NAPPI
Space: 571 Grade: 8
Guardian Angels, Cincinnati
Which Antifungal Medications Stop or Slow the Growth of Fungus

MS RIA NARANG
Space: 208 Grade: 8
Mason MS, Mason
Denaturing Proteins

MR AJ NOEL
Space: 713 Grade: 5
Chillicothe MS, Chillicothe
Can WiFi Signal affect the growth of plants?

MS AYANO NAKAMURA
Space: 971 Grade: 10
Hudson HS, Hudson
Green Flashlight

MS LAUREN NIEPORTE
Space: 169 Grade: 7
Oakwood MS, Canton
Do Students Test Better Online or On Paper?

MS RIA NARANG
Space: 208 Grade: 8
Mason MS, Mason
Denaturing Proteins

MR JUSTIN J NELSON
Space: 908 Grade: 11
Dublin Coffman HS, Dublin
Exposure to Light at Night Causes Cognitive Deficits

MR JOHN NIEZGODA
Space: 1072 Grade: 8
St Michael, Independence
Optimal Mass and Angle for Air Rocket Launching

MR AJ NOEL
Space: 713 Grade: 5
Chillicothe MS, Chillicothe
Can WiFi Signal affect the growth of plants?

MS MEGAN NEUMEIER
Space: 864 Grade: 10
Lehman Catholic HS, Sidney
The Influence of pH on the Effectiveness of Various Cleaning Products

MR AJ NOEL
Space: 713 Grade: 5
Chillicothe MS, Chillicothe
Can WiFi Signal affect the growth of plants?

MS AYANO NAKAMURA
Space: 971 Grade: 10
Hudson HS, Hudson
Green Flashlight

MS LAUREN NIEPORTE
Space: 169 Grade: 7
Oakwood MS, Canton
Do Students Test Better Online or On Paper?

MS RIA NARANG
Space: 208 Grade: 8
Mason MS, Mason
Denaturing Proteins

MR JUSTIN J NELSON
Space: 908 Grade: 11
Dublin Coffman HS, Dublin
Exposure to Light at Night Causes Cognitive Deficits

MR JOHN NIEZGODA
Space: 1072 Grade: 8
St Michael, Independence
Optimal Mass and Angle for Air Rocket Launching

MR AJ NOEL
Space: 713 Grade: 5
Chillicothe MS, Chillicothe
Can WiFi Signal affect the growth of plants?

MS AYANO NAKAMURA
Space: 971 Grade: 10
Hudson HS, Hudson
Green Flashlight

MS LAUREN NIEPORTE
Space: 169 Grade: 7
Oakwood MS, Canton
Do Students Test Better Online or On Paper?

MS RIA NARANG
Space: 208 Grade: 8
Mason MS, Mason
Denaturing Proteins

MR JUSTIN J NELSON
Space: 908 Grade: 11
Dublin Coffman HS, Dublin
Exposure to Light at Night Causes Cognitive Deficits

MR JOHN NIEZGODA
Space: 1072 Grade: 8
St Michael, Independence
Optimal Mass and Angle for Air Rocket Launching

MR AJ NOEL
Space: 713 Grade: 5
Chillicothe MS, Chillicothe
Can WiFi Signal affect the growth of plants?

MS AYANO NAKAMURA
Space: 971 Grade: 10
Hudson HS, Hudson
Green Flashlight

MS LAUREN NIEPORTE
Space: 169 Grade: 7
Oakwood MS, Canton
Do Students Test Better Online or On Paper?

MS RIA NARANG
Space: 208 Grade: 8
Mason MS, Mason
Denaturing Proteins

MR JUSTIN J NELSON
Space: 908 Grade: 11
Dublin Coffman HS, Dublin
Exposure to Light at Night Causes Cognitive Deficits

MR JOHN NIEZGODA
Space: 1072 Grade: 8
St Michael, Independence
Optimal Mass and Angle for Air Rocket Launching

MR AJ NOEL
Space: 713 Grade: 5
Chillicothe MS, Chillicothe
Can WiFi Signal affect the growth of plants?

MS AYANO NAKAMURA
Space: 971 Grade: 10
Hudson HS, Hudson
Green Flashlight

MS LAUREN NIEPORTE
Space: 169 Grade: 7
Oakwood MS, Canton
Do Students Test Better Online or On Paper?
ROSTER OF STUDENT EXHIBITORS

MR JOHNNY O’KARMA  
Space: 190 Grade: 7  
Bishop John King Mussio Central JS, Steubenville  
How Does Microwave Radiation Affect Different Organisms?

MR TRAVIS O’LEARY  
Space: 719 Grade: 10  
Carroll HS, Dayton  
Th Liquid Nitrogen Solution To Ocean Oil Spills

MR TY OLIVER  
Space: 1018 Grade: 6  
St Vincent de Paul, Mt Vernon  
Expansion

MS ALEXANDRIA E OLIVERIO  
Space: 777 Grade: 12  
St Vincent St Mary, Akron  
Effect of Osteogenic Growth Peptide Coated Titanium on Bone Growth after Total Knee and Hip Replacements

MR DEAN ORLOFF  
Space: 348 Grade: 9  
Thomas Worthington HS, Worthington  
Banana Ripening: What Works Best?

MR NATHAN OSBORNE  
Space: 512 Grade: 12  
Anna HS, Anna  
Creating a Cost Effective PCR Machine

MS EUNICE OTASANYA  
Space: 629 Grade: 10  
Horizon Science Academy, Columbus  
Gravity Operated Electricity Source

MR MICHAEL OUWELEEN  
Space: 377 Grade: 8  
St Francis DeSales, Newark  
Ice and Salt: The Complicated Science Behind a Simple Query

MS RENA OUYANG  
Space: 657 Grade: 8  
John C Dempsey MS, Delaware  
What Are Lichens Liking? A Study of Lichens and Their Tree Preferences

MS CAMILLA PACETTI  
Space: 71 Grade: 7  
St Francis DeSales, Lebanon  
Thick or Thin?

MR MASON PACK  
Space: 742 Grade: 7  
Our Lady Of Perpetual Help, Grove City  
Acid Rain Can Kill!

MS NINA PADANILAM  
Space: 904 Grade: 7  
St Rita, Solon  
Exercise That Brain: The Effect of Running on Memory

MS KAREN PAN  
Space: 820 Grade: 11  
Sylvania Northview HS, Sylvania  
The Endogenous Negative Regulators: Potential Drug Targets

MS HOLLY PAPPANO  
Space: 443 Grade: 10  
Hudson HS, Hudson  
Neural Network Studio

MS JENNA PARKER  
Space: 987 Grade: 11  
Piqua HS, Piqua  
The Dirt on Soap

MR GAVIN PARR  
Space: 118 Grade: 8  
Oakwood MS, Canton  
EMDrive

MS JALYNN PARRETT  
Space: 478 Grade: 8  
Paulding MS, Paulding  
Does Fertilizing Your Soil Affect the Nutritional Value of Hay

MS MOHINI PARVATE  
Space: 648 Grade: 8  
Henry Karrer MS, Dublin  
Algal Fizz: Optimal Conditions to Maximize Carbon Capture

MS GABRIELLE PASTI  
Space: 334 Grade: 6  
Holy Trinity, Avon  
How Moisturizing Is Your Moisturizer?

MR DEV PATEL  
Space: 833 Grade: 7  
Wheelersburg MS, Wheelersburg  
What is the Effect of Smoking?

MR DEVANK PATEL  
Space: 600 Grade: 11  
Mentor HS, Mentor  
Adhesive Forces Between Identical Polymer Surfaces

MR LAV PATEL  
Space: 300 Grade: 12  
Mentor HS, Mentor  
The Effect of Thermal Oxidative Stress on Antifoaming Fuel Efficiency in Motor Oils and Transmission Fluids

MS MEGAN PATEL  
Space: 157 Grade: 8  
Tower Heights MS, Centerville  
Can Stealth be answer to health?

MR ISAAC PAUL  
Space: 743 Grade: 7  
Our Lady Of Perpetual Help, Grove City  
I like it clean - not green

MS CAMRYN PAYNE  
Space: 666 Grade: 11  
Bloom Carroll HS, Carroll  
Decomposition of Bioplastics

MS HAILEY PAYNE  
Space: 811 Grade: 10  
Hudson HS, Hudson  
Tooth durability

MS MEGAN PENG  
Space: 941 Grade: 10  
Sylvania Southview HS, Sylvania  
The Use of Essential Oils to Decrease Produce-Based Pathogens

MR JEREMIAH PENICK  
Space: 188 Grade: 11  
Brookville HS, Brookville  
The Effects of Bromelain on Coagulated Blood

MS SHRIYA PENMETS A  
Space: 160 Grade: 9  
William Mason HS, Mason  
Battle of the Ages (Social Conformity between adults and teens)

MR JESSE PENNINGTON  
Space: 1105 Grade: 7  
Eastern Intermediate ES, Beaver  
Ping Pong Ball Cannon: A Study of Mass of a Projectile and its Effect on Velocity

MS SHEA PERIN  
Space: 913 Grade: 7  
Peebles HS, Peebles  
Can You Take the Heat?

MR MACKINNLEY PERKINS  
Space: 563 Grade: 5  
East Richland Christian School, St Clairsville  
Durability of Paper Towels

MR GAVIN PERKOWSKI  
Space: 1034 Grade: 5  
Bell Creek ES, Bellbrook  
Do You Use the Right Cup?

MS JAYDA PETERSON  
Space: 344 Grade: 10  
East Community Learning Center, Akron  
Does chemical lighting effect the structure of human hair?
The Ohio Academy of Science

MS KARIN PETERSON
Space: 380 Grade: 6
Bellbrook MS, Bellbrook
Baking soda and vinegar “rocket”

MS JULIA PETRIE
Space: 961 Grade: 7
St Agatha, Columbus
Growth of Bacteria on Food When Dropped on Various Surfaces

MS ELSA PFRENGER
Space: 435 Grade: 5
Youngstown Christian, Youngstown
Conductive Saline Solutions

MR CAMERON PHILLIPS
Space: 974 Grade: 9
Valley View HS, Germantown
Coconut Oil vs. Bacteria

MS MEGAN L PHIPPS
Space: 745 Grade: 11
Bloom Carroll HS, Carroll
Utilizing Sorbent Booms To Lessen The Environmental Impact Of Ocean Oils Spills

MS MACKENNA PHISTER
Space: 115 Grade: 8
Oakwood MS, Canton
Can chickens be therapy animals?

MR JOHN PIEHOWICZ
Space: 1003 Grade: 8
Guardian Angels, Cincinnati
An In Depth Look at the Mpemba Effect

MS CAROLINE PIER
Space: 601 Grade: 11
St Vincent St Mary, Akron
The Effect of Temperature on Thermoresponsive, Biocompatible Polyesters

MS KIRSTIN PIER
Space: 1145 Grade: 9
St Vincent St Mary, Akron
The Effect of Increasing Temperatures on Water Fleas’ Reproduction

MS SIENA PILATI
Space: 118 Grade: 7
Oakwood MS, Canton
Will exercise affect visual accuracy?

MS CAMRYN PILLAR
Space: 16 Grade: 11
Sylvania Northview HS, Sylvania
The Effects of Memory Due to Braingames

MS CATE PILON
Space: 488 Grade: 7
St Columban, Loveland
Soil Stability during an Earthquake

MR INDRAKARAN PIPPALI
Space: 1050 Grade: 9
Dublin Coffman HS
FARADAY LENZ Law

MS EMILY PLAGEMAN
Space: 187 Grade: 6
Bloom Carroll MS, Carroll
The Effect of Folic Acid on Cell Shape

MR TIMOTHY PLAGEMAN
Space: 1139 Grade: 8
Bloom Carroll MS, Carroll
Effects of Cold Temperatures on ovo and p66 Transcription

MS ALLISON PLANTZ
Space: 175 Grade: 6
Chesapeake MS, Chesapeake
Seeing Eye to Eye

MS KIRSTEN POLING
Space: 826 Grade: 7
Ada HS, Ada
Power from Water

MS KARISHMA PONKSHE
Space: 363 Grade: 10
William Mason HS, Mason
The Fuel for the Future: Optimization of Hydrogen Gas through Electrolysis

MS LAUREN POPP
Space: 355 Grade: 7
St Charles Borromeo, Kettering
Catching Fire

MR ROSS POOL
Space: 826 Grade: 6
Wilson Hill ES, Worthington
Your Memory Nose

MR RAHUL PRABHU
Space: 575 Grade: 8
Turpin HS, Cincinnati
The Effect of Age on Memory Based on Mnemonics

MR JOHN PROTZ
Space: 1030 Grade: 8
St Paul, Westerville
The Effect of Drag on the Distance a Model Plane Flies

MR CAMERON PROVONSIL
Space: 503 Grade: 11
Carroll HS, Dayton
The Effect of a Cold Launch System on Getting Cargo into Space for the Least Amount of Money

MR KYLE PROVONSIL
Space: 1090 Grade: 8
St Luke, Beavercreek
Parachutes

MS OLIVIA PUNTENNEY
Space: 80 Grade: 9
Turpin HS, Cincinnati
The Effect of Cold on the Distance a Model Plane Flies

MR AKUL RAJAN
Space: 693 Grade: 11
William Mason HS, Mason
An Organic Method of Remediation: Biochar as an amendment for different types of depleted soils

MS GAYATRI RAJAN
Space: 459 Grade: 7
Mason MS, Mason
ChoosePeace: Cyberbullying is over.

MR NITHTHILAN RAMANITHARAN
Space: 747 Grade: 7
Coy MS, Beavercreek
Is Our Water Safe?
<table>
<thead>
<tr>
<th>Name</th>
<th>Space</th>
<th>Grade</th>
<th>School</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR RAHUL RAMESH</td>
<td>1141</td>
<td>11</td>
<td>William Mason HS, Mason</td>
<td>The Effect of Temperature on Reptilian Digestion</td>
</tr>
<tr>
<td>MR ANANT RAMJI</td>
<td>213</td>
<td>9</td>
<td>William Mason HS, Mason</td>
<td>Testing for allergens in foods</td>
</tr>
<tr>
<td>MS MACEY RANCK</td>
<td>149</td>
<td>7</td>
<td>Sheridan MS, Thornville</td>
<td>The Golden Ratio</td>
</tr>
<tr>
<td>MR CAMON RASHIDI</td>
<td>849</td>
<td>9</td>
<td>West Geauga HS, Chesterland</td>
<td>The Effect of Temperature on Reptilian Digestion</td>
</tr>
<tr>
<td>MR KEYVON RASHIDI</td>
<td>619</td>
<td>7</td>
<td>The University School, Chagrin Falls</td>
<td>Identifying Transcription Factors that Regulate the Expression of CEMIP</td>
</tr>
<tr>
<td>MR CHRISTOPHER RATHGE</td>
<td>1063</td>
<td>7</td>
<td>St Benedict Catholic School, Toledo</td>
<td>Reaching Greater Altitudes</td>
</tr>
<tr>
<td>MS SHRUTHI RAVICHANDRAN</td>
<td>463</td>
<td>8</td>
<td>Birchwood School, Cleveland</td>
<td>Do Coronal Mass Ejections Correlate with the Solar Sunspot Cycle?</td>
</tr>
<tr>
<td>MS KATHRYN R RECKER</td>
<td>924</td>
<td>9</td>
<td>Mapleton HS, Ashland</td>
<td>Comparing the antibiotic properties of common household substances</td>
</tr>
<tr>
<td>MR MATTHEW RECKER</td>
<td>339</td>
<td>7</td>
<td>Mapleton MS, Ashland</td>
<td>Don’t Trust the Rust</td>
</tr>
<tr>
<td>MR SANJIT REDDY</td>
<td>767</td>
<td>8</td>
<td>New Albany MS, New Albany</td>
<td>Non-Euclidean Origametry</td>
</tr>
<tr>
<td>MS ALAINA REED</td>
<td>922</td>
<td>8</td>
<td>St Edward, Ashland</td>
<td>Comparing the Disinfecting Capability of Ultraviolet Light Versus Alcohol Based Disinfecting Wipes on Cellular Devices</td>
</tr>
<tr>
<td>MS ELYSE REED</td>
<td>726</td>
<td>8</td>
<td>St Edward, Ashland</td>
<td>The Effects of Ocean Acidification on Decomposing Polyethylene</td>
</tr>
<tr>
<td>MS MEREDITH REED</td>
<td>60</td>
<td>7</td>
<td>Mother Teresa Catholic, Liberty Twp</td>
<td>What is better for overall neatness: wooden pencils, mechanical pencils, or pens?</td>
</tr>
<tr>
<td>MS NICOLE REESE</td>
<td>418</td>
<td>8</td>
<td>St Hilary, Fairlawn</td>
<td>True Sweetness of Artificial Sweeteners</td>
</tr>
<tr>
<td>MR BRYAN REGO</td>
<td>706</td>
<td>10</td>
<td>West Geauga HS, Chesterland</td>
<td>Ingestion of microplastic debris by perca flavescens yellow perch in Lake Erie: is this a problem?</td>
</tr>
<tr>
<td>MS KAYLA REIDY</td>
<td>316</td>
<td>8</td>
<td>Walnut Hills HS, Cincinnati</td>
<td>Peanut Residue?</td>
</tr>
<tr>
<td>MS ELLA REITHER</td>
<td>347</td>
<td>8</td>
<td>St Paul, Westerville</td>
<td>The Effect of Tap, Bottled, or Filtered Water on pH</td>
</tr>
<tr>
<td>MS EMMA REUTELSHOFER</td>
<td>650</td>
<td>8</td>
<td>St Columban, Loveland</td>
<td>Biochar: A Tool to Solving Global Warming</td>
</tr>
<tr>
<td>MS HANNAH REX</td>
<td>604</td>
<td>6</td>
<td>Walnut Springs MS, Westerville</td>
<td>The Importance Of Bee Education</td>
</tr>
<tr>
<td>MR JACOB TYLER RICHARDS</td>
<td>191</td>
<td>8</td>
<td>St Mary Central, Martins Ferry</td>
<td>Is Sensitivity Heightened On Your Dominant Side?</td>
</tr>
<tr>
<td>MR IAN RICHARDSON</td>
<td>140</td>
<td>7</td>
<td>Miller South Perf Visual &amp; Arts School, Akron</td>
<td>A comparison of mouthwashes on oral bacteria</td>
</tr>
<tr>
<td>MS MADISON RICHEY</td>
<td>174</td>
<td>8</td>
<td>North Adams HS, Seaman</td>
<td>Are Student Sensitivity Levels Higher in Dominant or Non dominant Hand?</td>
</tr>
<tr>
<td>MR RANDY RICKEL</td>
<td>252</td>
<td>8</td>
<td>Ontario MS, Mansfield</td>
<td>“Oh Joy, It’s Soy!”</td>
</tr>
<tr>
<td>MS KAYLA RIEGLE</td>
<td>95</td>
<td>11</td>
<td>Arcanum HS, Arcanum</td>
<td>Conformity to Consensus</td>
</tr>
<tr>
<td>MR WILL RIEHLE</td>
<td>1061</td>
<td>5</td>
<td>L T Ball Intermediate ES, Tipp City</td>
<td>Tee It Up: Investigating the Effect of Tee Height on the Distance a Golf Ball Travels</td>
</tr>
<tr>
<td>MS HANNAH RILEY</td>
<td>808</td>
<td>8</td>
<td>Pettisville HS, Pettisville</td>
<td>A comparison of mouthwashes on oral bacteria</td>
</tr>
<tr>
<td>MS SARAH RILEY</td>
<td>324</td>
<td>11</td>
<td>Arcanum HS, Arcanum</td>
<td>Not Like the Movies</td>
</tr>
<tr>
<td>MR STEVEN RILEY</td>
<td>1064</td>
<td>11</td>
<td>Hiltop HS, West Unity</td>
<td>Which Bullet Penetrates The Best</td>
</tr>
<tr>
<td>MS RAINA RINDANI</td>
<td>224</td>
<td>11</td>
<td>Turpin HS, Cincinnati</td>
<td>The Effect of Farming Method on the Rate of Carbohydrate Catabolism in Gala Apples</td>
</tr>
<tr>
<td>MS KATIA RINGLER</td>
<td>945</td>
<td>9</td>
<td>Mapleton HS, Ashland</td>
<td>Infected Iphones</td>
</tr>
<tr>
<td>MS CALEIGH RISTER</td>
<td>19</td>
<td>8</td>
<td>Bucyrus MS, Bucyrus</td>
<td>Text Color and Memory</td>
</tr>
<tr>
<td>MR ANGEL RIVERA</td>
<td>838</td>
<td>7</td>
<td>Mapleton HS, Ashland</td>
<td>Our Lady Of Perpetual Help, Grove City</td>
</tr>
<tr>
<td>MS MACKENZI RIVERA</td>
<td>808</td>
<td>8</td>
<td>Pettisville HS, Pettisville</td>
<td>Does Chromatic Adaptation Last Longer in Males or Females</td>
</tr>
<tr>
<td>MS SYDNI RIVERA</td>
<td>15</td>
<td>12</td>
<td>Hilltop HS, West Unity</td>
<td>Testing Student Engagement in Learning Processes in Real vs. Virtual Dissection</td>
</tr>
<tr>
<td>MS MORGAN ROACH</td>
<td>162</td>
<td>8</td>
<td>Guardian Angels, Cincinnati</td>
<td>Delaying Gratification in Children</td>
</tr>
<tr>
<td>MR MATTHEW ROBERTS</td>
<td>771</td>
<td>9</td>
<td>Hudson HS, Hudson</td>
<td>Constructing a Regression Model for Projecting Changes in Longevity Patterns for the U.S. Population</td>
</tr>
<tr>
<td>Name</td>
<td>Space</td>
<td>Grade</td>
<td>School</td>
<td>Project Title</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------</td>
<td>-------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MR JARED RODGERS</td>
<td>438</td>
<td>6</td>
<td>Youngstown Christian, Youngstown</td>
<td>Which Fertilizer Makes the Best Cold Pack?</td>
</tr>
<tr>
<td>MS SUMMER RODGERS</td>
<td>1129</td>
<td>7</td>
<td>Kilbourne MS, Worthington</td>
<td>Color Preference of Birds</td>
</tr>
<tr>
<td>MS FAITH ROGERS</td>
<td>147</td>
<td>6</td>
<td>Liberty Union MS, Baltimore</td>
<td>Typoglycemic Comprehension in Middle Schoolers</td>
</tr>
<tr>
<td>MS ELLEN ROHDE</td>
<td>546</td>
<td>6</td>
<td>Bishop John King Massio Central ES, Steubenville</td>
<td>Is Warm Air Cooled As it Passes Through A Funnel?</td>
</tr>
<tr>
<td>MS JASMIN ROLLINS</td>
<td>799</td>
<td>9</td>
<td>Glen Oak HS, Canton</td>
<td>Best Egg Quality: Caged, Cage Free, or Posture Raised</td>
</tr>
<tr>
<td>MS JOSEPHINE ROSE</td>
<td>883</td>
<td>8</td>
<td>St Luke, Beavercreek</td>
<td>How is the Weight of a Solar Cell Increased?</td>
</tr>
<tr>
<td>MS MIA ROSSI</td>
<td>52</td>
<td>2</td>
<td>Our Lady Of Perpetual Help, Grove City</td>
<td>Does Font Style Affect Memory Recall</td>
</tr>
<tr>
<td>MR MIKEY ROSSMAN</td>
<td>938</td>
<td>9</td>
<td>Lehman Catholic HS, Sidney</td>
<td>Is Bioremediation An Effective Way To Reduce The Amount Of Oil In Polluted Water</td>
</tr>
<tr>
<td>MR ANDREW ROUSER</td>
<td>1032</td>
<td>6</td>
<td>Fairfield Christian Academy, Lancaster</td>
<td>How Can the Power Output of a Solar Cell Be Increased?</td>
</tr>
<tr>
<td>MS ANJA ROWANE</td>
<td>497</td>
<td>7</td>
<td>St Paschal Baylon, Highland Heights</td>
<td>Which Wing Design Creates the Greatest Lift</td>
</tr>
<tr>
<td>MS KAYLEIGH ROWE</td>
<td>88</td>
<td>6</td>
<td>Dawson-Bryant MS, Coal Grove</td>
<td>Are Childproof Containers Really Childproof?</td>
</tr>
<tr>
<td>MS CORRINE RUBLE</td>
<td>358</td>
<td>9</td>
<td>Carroll HS, Dayton</td>
<td>The Effect of Different Cooking Methods on Vitamin C In Broccoli</td>
</tr>
<tr>
<td>MR TRENT RUFFING</td>
<td>105</td>
<td>7</td>
<td>Our Lady Of Perpetual Help, Grove City</td>
<td>What Color Do You See</td>
</tr>
<tr>
<td>MS JANIE RUMELY</td>
<td>70</td>
<td>7</td>
<td>All Saints, Cincinnati</td>
<td>The nose knows smell; but what about taste?</td>
</tr>
<tr>
<td>MS LIZZIE RUPLE</td>
<td>137</td>
<td>7</td>
<td>Hudson HS, Hudson</td>
<td>How Perception Influences Taste</td>
</tr>
<tr>
<td>MR MATTHEW RUPP</td>
<td>598</td>
<td>9</td>
<td>Pettisville HS, Pettisville</td>
<td>A Comparison of Aluminum to 3D Printed Shear Keys</td>
</tr>
<tr>
<td>MS MADISON RUSSELL</td>
<td>984</td>
<td>7</td>
<td>Portsmouth West MS, W Portsmouth</td>
<td>Year Two Bacteria Grew: Will the disinfectant cleaning agent hold its reign or will an organic cleaning agent still its fame?</td>
</tr>
<tr>
<td>MR CALEB RYKACZEWSKI</td>
<td>1126</td>
<td>12</td>
<td>Mentor HS, Mentor</td>
<td>The Effect of Seasonal Variation on Food Intake (Order Aves)</td>
</tr>
<tr>
<td>MR BRYAN SABULA</td>
<td>614</td>
<td>7</td>
<td>St Vincent de Paul, Mt Vernon</td>
<td>Hydrodynamics</td>
</tr>
<tr>
<td>MR MATTHIAS SACCO</td>
<td>484</td>
<td>5</td>
<td>St Mary Central, Martins Ferry</td>
<td>Ground Erosion</td>
</tr>
<tr>
<td>MS LINDSAY SADLER</td>
<td>219</td>
<td>10</td>
<td>Hudson HS, Hudson</td>
<td>Are GMOs hiding in your snacks?</td>
</tr>
<tr>
<td>MR PRASANJIT SAHOO</td>
<td>764</td>
<td>9</td>
<td>Dublin Coffman HS, Dublin</td>
<td>Algorithmic Patterns in Squared Numbers</td>
</tr>
<tr>
<td>MS JESSICA SAKI</td>
<td>993</td>
<td>11</td>
<td>Columbia HS, Columbia Station</td>
<td>Ideal Conditions for Coacervate Formation</td>
</tr>
<tr>
<td>MR MATTHEW SALVUCCI</td>
<td>1019</td>
<td>6</td>
<td>St Vincent de Paul, Mt Vernon</td>
<td>Stealth Technology</td>
</tr>
<tr>
<td>MS SARAH SALZMAN</td>
<td>969</td>
<td>8</td>
<td>Incarnation, Centerville</td>
<td>Does organic or non-organic fruit mold faster?</td>
</tr>
<tr>
<td>MS NICOLE SANCHEZ</td>
<td>133</td>
<td>11</td>
<td>Horizon Science Academy, Lorain</td>
<td>Measuring Attention Span in Teens</td>
</tr>
<tr>
<td>MS ALLISON R SANDERS</td>
<td>204</td>
<td>10</td>
<td>Global Impact STEM Academy, Springfield</td>
<td>Macromolecule Comparison in Dog Treats with Different Flour Bases</td>
</tr>
<tr>
<td>MS MADELEINE SANDERS</td>
<td>690</td>
<td>9</td>
<td>Carroll HS, Dayton</td>
<td>The Effect of Protective Coatings for Limestone Structures</td>
</tr>
<tr>
<td>MR MATTHEW SANDOR</td>
<td>1047</td>
<td>7</td>
<td>Sacred Heart of Jesus, Wadsworth</td>
<td>Magnetic linear accelerator</td>
</tr>
<tr>
<td>MR ABHISHEK SANGU</td>
<td>409</td>
<td>7</td>
<td>Hyatts MS, Powell</td>
<td>Zinc-Air Batteries</td>
</tr>
<tr>
<td>MR LEONARDO SANTAMARINA</td>
<td>1094</td>
<td>7</td>
<td>St Columban, Loveland</td>
<td>Determining the Effect of a Ball's Air Pressure on the Distance Travelled</td>
</tr>
<tr>
<td>MS EVELYN SARLE</td>
<td>707</td>
<td>8</td>
<td>St Paul, Westerville</td>
<td>The Effect of Sulfuric and Nitric Acids on Lettuce Seeds’ Growth</td>
</tr>
<tr>
<td>MS ANNA SAS</td>
<td>26</td>
<td>6</td>
<td>Mapleton ES, Ashland</td>
<td>Neon Backgrounds</td>
</tr>
<tr>
<td>MS EMMA SAS</td>
<td>272</td>
<td>10</td>
<td>Mapleton HS, Ashland</td>
<td>Soil vs. Hydroponics</td>
</tr>
<tr>
<td>MS LILA SAUER</td>
<td>314</td>
<td>6</td>
<td>River's Edge Montessori PreK-6 School, Dayton</td>
<td>Will It Slime?</td>
</tr>
<tr>
<td>MR LOHITH SAVARDEKAR</td>
<td>827</td>
<td>8</td>
<td>John Sells MS, Dublin</td>
<td>Exploring the role of glycoproteins in the effectiveness of influenza vaccines.</td>
</tr>
<tr>
<td>MS ISHA SAWHNEY</td>
<td>473</td>
<td>8</td>
<td>Olentangy Shanahan MS, Lewis Center</td>
<td>Add the Biochar</td>
</tr>
</tbody>
</table>
ROSTER OF STUDENT EXHIBITORS

MS KATY SCHAAF
Space: 750 Grade: 8
St Columban, Loveland
Bryozoans: A Natural Solution to Forms of Water Pollution

MS KYLIE SCHAEFERLE
Space: 565 Grade: 7
St Vincent de Paul, Mt Vernon
Superconductivity

MS CARLY SCHAFER
Space: 184 Grade: 10
Columbian HS, Tiffin
Respiration of Sugar by Yeast

MS MICAH SCHROEDER
Space: 467 Grade: 10
Hicksville HS, Hicksville
The Impact of Solar Panels on Earth’s Temperature

MS ANNA SCHULER
Space: 41 Grade: 7
Upper Arlington HS, Upper Arlington
Gender biases towards intelligence, competence, and educational ability in middle school students

MR JORDAN SCHWARTZ
Space: 509 Grade: 6
Alliance MS, Alliance
Shape Changes Everything

MR DREW SCHWITZGEBEL
Space: 305 Grade: 6
Wilson Hill ES, Worthington
FEED US BREAKFAST

MS ANNIE BETH SCOTT
Space: 482 Grade: 5
Zane Trace MS, Chillicothe
Soil Erosion

MS NICOLE SCOTT
Space: 801 Grade: 11
Tuscarawas Valley HS, Zoarville
Which pH level correlates steel wool quicker

MR ARMAN SERPEN
Space: 433 Grade: 7
Oakwood MS, Canton
Which pH level correlates steel wool quicker

MR DEVEN SEAMONS
Space: 642 Grade: 5
Youngstown Christian
Levitating Letters

MS JULIE SEBASTIAN
Space: 327 Grade: 7
Bethel ES, Tipp City
The Effects of Age, Gender, and Fitness Level on Heart Rate Recovery

MS LISA SEBASTIAN
Space: 897 Grade: 8
Bethel JS, Tipp City
The Effects of Age, Gender, and Fitness Level on Heart Rate Recovery

MS SARAH SEELEY
Space: 274 Grade: 11
Benjamin Logan HS, Bellefontaine
Soybean Peroxidase

MR TROY SELMA
Space: 345 Grade: 8
Fort Jennings HS, Fort Jennings
Which type of egg substitute makes cake rise the most?

MR MARK SEMRO
Space: 1062 Grade: 5
Trinity Lutheran, Toledo
May the Frictional Force be with you

MS NICOLE F SEMRO
Space: 330 Grade: 8
Trinity Lutheran, Toledo
Drinking Water Quality Analysis

MR ALEXANDER SERENA
Space: 433 Grade: 7
Oakwood MS, Canton
Which pH level correlates steel wool quicker

MR BRANDT SEAMAN
Space: 561 Grade: 5
West Union ES, Westerville
Paper Towel Comparisons: Which Brand is the Best?

MR DEVIN SEAMAN
Space: 561 Grade: 5
West Union ES, W Union
Paper Towel Comparisons: Which Brand is the Best?

MR TROY SELMA
Space: 345 Grade: 8
Fort Jennings HS, Fort Jennings
Which type of egg substitute makes cake rise the most?

MR MARK SEMRO
Space: 1062 Grade: 5
Trinity Lutheran, Toledo
May the Frictional Force be with you

MS AISLEN SETTY
Space: 96 Grade: 8
Graham MS, St Paris
Teen Anxiety, Stress, and Worry

MS AISLEN SETTY
Space: 96 Grade: 8
Graham MS, St Paris
Teen Anxiety, Stress, and Worry

MR HAYDEN SEVER
Space: 405 Grade: 6
Piqua Catholic ES, Piqua
Electrolyte Challenge

MS RYLIE SEVERSON
Space: 318 Grade: 8
St Paul, N Canton
Which substance, Sodium Chloride or Calcium Chloride, will lower the freezing point of water the most?

MS HANNAH SHADD
Space: 945 Grade: 9
Mapleton HS, Ashland
Infected Iphones

MR CHAD SCHNIPKE
Space: 736 Grade: 7
Ottoville ES, Ottoville
Is Buying Bottled Water Worth It?
MR KENNETH SHAHADY
Space: 773 Grade: 8
St Luke, Beavercreek
Can Simulation Predict Real World Events?

MS EMMA SHAMBLIN
Space: 94 Grade: 8
South Gallia MS, Crown City
Now you See It, Now You Don’t

MS HANNAH SHARIFF
Space: 654 Grade: 9
Ottawa Hills HS, Toledo
How Plants Effect the Reduction of Phosphorus

MS LILLIAN SHARP
Space: 582 Grade: 6
Terrace Park ES, Terrace Park
A Pump for all Balls

MR LUKE SHARP
Space: 1084 Grade: 7
St Mary, Lancaster
Air Hockey and Angles

MR JOHN SHIN
Space: 35 Grade: 8
St Adalbert, Berea
Does Music Affect Retention?

MR RYAN SHEPARD
Space: 35 Grade: 8
St Adalbert, Berea
How do cell phones affect your reaction time?

MS NATHALEYA SIMPSON
Space: 119 Grade: 11
Horizon Science Academy, Lorain
How Heavty Metals In Gaseous State Affect Calcium Absorption in Your Bones?

MR MASON SIMS
Space: 857 Grade: 6
Peebles ES, Peebles
The Rhythm of my Heart!

MR ATMAN SINGH
Space: 576 Grade: 5
New Albany 2-5 ES, New Albany
Maglev

MR POALO SINOPOLI
Space: 673 Grade: 7
Oakwood MS, Canton
Can Grass Survive Fully Inclosed

MR BADEN SKATES
Space: 613 Grade: 7
Pettisville HS, Pettisville
The Effect of Number of Blades and Pitch of Blades on Voltage Produced by Wind Turbine

MS JORDAN M SKATES
Space: 655 Grade: 11
Pettisville HS, Pettisville
Survey of Three Different Wetlands and their Ability to Remove Excess Pollutants

MS ALEXANDRIA SINOPOLI
Space: 671 Grade: 8
St Michael, Independence
Dissolving Alka-Seltzer

MR PAOLO SINOPOLI
Space: 857 Grade: 6
Peebles ES, Peebles
The Rhythm of my Heart!

MR MASON SIMS
Space: 857 Grade: 6
Peebles ES, Peebles
The Rhythm of my Heart!

MR CARSON SMITH
Space: 434 Grade: 7
Oakwood MS, Canton
How Does Surface Temperature Affect Fingerprints?

MS CASSIDY G SMITH
Space: 352 Grade: 9
Bloom Carroll HS, Carroll
Biodiesel vs. Diesel: A Comparison of Energy Contents

MR COLE SMITH
Space: 240 Grade: 8
Geneva JS, Geneva
Aquaponics vs Soil

MS HAILEY SMITH
Space: 1070 Grade: 7
Sacred Heart of Jesus, Wadsworth
Got Speed?

MS MADDIE SHONKWILER
Space: 135 Grade: 8
Ashland Christian, Ashland
Is Smiling Contagous?

MS MARISSA SHOOK
Space: 228 Grade: 6
Ansonia MS, Ansonia
What Can You Do to Prevent Apple Slices From Turning Brown?

MS GRETCHEN SHOPE
Space: 383 Grade: 7
St Aloysius, Bowling Green
Fermenting Juice at Home

MS BRIELLE SHORTER
Space: 542 Grade: 7
Fairfield MS, Fairfield
Smokin’ Stoves

MR CAL M SHRIMPLIN
Space: 817 Grade: 8
River View MS, Warsaw
Sports Drinks: Read Before You Swig

MS RAMAN SIDHU
Space: 341 Grade: 10
Hudson HS, Hudson
The Science Behind a Cold Pack

MS SYDIE SIEBENECK
Space: 790 Grade: 9
Fort Jennings HS, Fort Jennings
What are the effects of over the counter medicines on the heart rate of model organism Daphnia Magna?

MR PHILIP SIMMS
Space: 304 Grade: 7
Walnut Springs MS, Westerville
Flour Power

MR JOHN SHIN
Space: 35 Grade: 8
St Adalbert, Berea
Does Music Affect Retention?

MR RYAN SHEPARD
Space: 35 Grade: 8
St Adalbert, Berea
How do cell phones affect your reaction time?

MS NATHALEYA SIMPSON
Space: 119 Grade: 11
Horizon Science Academy, Lorain
How Heavty Metals In Gaseous State Affect Calcium Absorption in Your Bones?

MR MASON SIMS
Space: 857 Grade: 6
Peebles ES, Peebles
The Rhythm of my Heart!

MR ATMAN SINGH
Space: 576 Grade: 5
New Albany 2-5 ES, New Albany
Maglev

MR POALO SINOPOLI
Space: 673 Grade: 7
Oakwood MS, Canton
Can Grass Survive Fully Inclosed

MR BADEN SKATES
Space: 613 Grade: 7
Pettisville HS, Pettisville
The Effect of Number of Blades and Pitch of Blades on Voltage Produced by Wind Turbine

MS JORDAN M SKATES
Space: 655 Grade: 11
Pettisville HS, Pettisville
Survey of Three Different Wetlands and their Ability to Remove Excess Pollutants

MS ALEXANDRIA SINOPOLI
Space: 671 Grade: 8
St Michael, Independence
Dissolving Alka-Seltzer

MR PAOLO SINOPOLI
Space: 673 Grade: 7
Oakwood MS, Canton
Can Grass Survive Fully Inclosed

MR BADEN SKATES
Space: 613 Grade: 7
Pettisville HS, Pettisville
The Effect of Number of Blades and Pitch of Blades on Voltage Produced by Wind Turbine

MS JORDAN M SKATES
Space: 655 Grade: 11
Pettisville HS, Pettisville
Survey of Three Different Wetlands and their Ability to Remove Excess Pollutants

MS LEXI SLADE
Space: 794 Grade: 6
Conesville ES, Conesville
Alka-Seltzer: Does Temperature Matter?

MR BENJAMIN N SLAUENWHITE
Space: 506 Grade: 12
Bellbrook HS, Bellbrook
Rocket’s Red Glare

MR CAMERON SLOTER
Space: 702 Grade: 7
Mapleton MS, Ashland
The Potential Health and Reproductive Effects of Backyard Burn Barrels on Drosophila

MR SAM K SLUTZ
Space: 1115 Grade: 10
Huron HS, Huron
A Load Theory in Quantum Flux Pinning

MS JALICIA SMALLEY
Space: 514 Grade: 12
Horizon Science Academy, Lorain
Novel Optical Character to Develop a Library of Molecular Fingerprints Quantifying Insulin Dosage

MS ADISON SMITH
Space: 235 Grade: 6
Warsaw ES, Warsaw
Soybean Growth

MR ALEX SMITH
Space: 610 Grade: 7
Incarnation, Centerville
A Penny for your Boats....A Study of Buoyancy

MR CARSON SMITH
Space: 434 Grade: 7
Oakwood MS, Canton
How Does Surface Temperature Affect Fingerprints?

MS CASSIDY G SMITH
Space: 352 Grade: 9
Bloom Carroll HS, Carroll
Biodiesel vs. Diesel: A Comparison of Energy Contents

MR COLE SMITH
Space: 240 Grade: 8
Geneva JS, Geneva
Aquaponics vs Soil

MS HAILEY SMITH
Space: 1070 Grade: 7
Sacred Heart of Jesus, Wadsworth
Got Speed?

MS MACKENZIE SMITH
Space: 923 Grade: 12
Northwestern HS, W Salem
Does Local Honey Improve the Severity of Seasonal Allergies?

MR C’AMAREA SNIPES-THOMAS
Space: 646 Grade: 11
Horizon Science Academy, Lorain
Can NaOH Reduce CO2/CO Emissions?

MR ELLAH S MYER
Space: 590 Grade: 8
Chesapeake MS, Chesapeake
Creating The Most Effective Generator
<table>
<thead>
<tr>
<th>Name</th>
<th>Space</th>
<th>Grade</th>
<th>City/State</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS EMMA MARY SNYDER</td>
<td>365</td>
<td>8</td>
<td>North Canton MS, N Canton</td>
<td>Cleaning Rust is a Must!</td>
</tr>
<tr>
<td>MR GRADEN SNYDER</td>
<td>733</td>
<td>10</td>
<td>The University School, Chagrin Falls</td>
<td>Testing the Efficacy of Phosphorus-Sorbing Materials</td>
</tr>
<tr>
<td>MS GRACE SOLTESZ</td>
<td>788</td>
<td>8</td>
<td>St Raphael, Bay Village</td>
<td>Germ-A-Phone: Evaluation of Four Different Methods to Sanitize Cellular Phones</td>
</tr>
<tr>
<td>MR VAMSHI SOMAPALLI</td>
<td>448</td>
<td>5</td>
<td>New Albany 2-5 ES, New Albany</td>
<td>WiFi Performance Project</td>
</tr>
<tr>
<td>MS YADNYA SONAWANE</td>
<td>775</td>
<td>8</td>
<td>Olentangy Shanahan MS, Lewis Center</td>
<td>Brain Dominance</td>
</tr>
<tr>
<td>MR CALEB SOWERS</td>
<td>631</td>
<td>5</td>
<td>New Albany 2-5 ES, New Albany</td>
<td>Nozzle Performance</td>
</tr>
<tr>
<td>MR AIDEN SPAULDING</td>
<td>589</td>
<td>6</td>
<td>Bishop Flaget, Chillicothe</td>
<td>Which Fruits And Vegetables Conduct Electricity the best</td>
</tr>
<tr>
<td>MS TAISHA SPEARS</td>
<td>658</td>
<td>8</td>
<td>Bucyrus MS, Bucyrus</td>
<td>Testing Natural Dyes</td>
</tr>
<tr>
<td>MS ADDISON SPEED</td>
<td>780</td>
<td>9</td>
<td>Fairfield HS, Proctortville</td>
<td>Darkness Adoption</td>
</tr>
<tr>
<td>MR GAVIN SPENCe</td>
<td>918</td>
<td>9</td>
<td>Urbana HS, Urbana</td>
<td>Is Dog Saliva The Next Antibiotic?</td>
</tr>
<tr>
<td>MR COLBY SPRAGUE</td>
<td>47</td>
<td>5</td>
<td>Madison Christian School, Groveport</td>
<td>Music of the Mind</td>
</tr>
<tr>
<td>MS MAGGIE SPRUNG</td>
<td>1129</td>
<td>7</td>
<td>Kilbourne MS, Worthington</td>
<td>Color Preference of Birds</td>
</tr>
<tr>
<td>MS NIKHITA SRIKANTH</td>
<td>46</td>
<td>7</td>
<td>Henry Karrer MS, Dublin</td>
<td>Musicopoly</td>
</tr>
<tr>
<td>MS OVIYA SRIKANTH</td>
<td>469</td>
<td>6</td>
<td>New Albany MS, New Albany</td>
<td>Global Warming and Dissolved Oxygen: A Voice of Natural Variability</td>
</tr>
<tr>
<td>MS ARCHITA SRIRAM</td>
<td>775</td>
<td>8</td>
<td>Olentangy Shanahan MS, Lewis Center</td>
<td>Brain Dominance</td>
</tr>
<tr>
<td>MR DUNCAN SRSIC</td>
<td>1013</td>
<td>9</td>
<td>Worthington Kilbourne HS, Columbus</td>
<td>EMPS and Faraday Cages</td>
</tr>
<tr>
<td>MR JADEN STAINFORTH</td>
<td>498</td>
<td>6</td>
<td>Birchwood School, Cleveland</td>
<td>Fin Size vs. Flying Distance</td>
</tr>
<tr>
<td>MS MIRANDA STANICHVICH</td>
<td>184</td>
<td>11</td>
<td>Columbian HS, Tiffin</td>
<td>Respiration of Sugar by Yeast</td>
</tr>
<tr>
<td>MS LEAH STANEVICH</td>
<td>727</td>
<td>11</td>
<td>Garfield HS, Akron</td>
<td>The Effects of Phosphorus and Dissolved Oxygen Levels on Freshwater Ecosystems.</td>
</tr>
<tr>
<td>MS FAITH STANBURY</td>
<td>659</td>
<td>8</td>
<td>Mapleton MS, Ashland</td>
<td>All About That Bait</td>
</tr>
<tr>
<td>MS BAILEY STAULD</td>
<td>1106</td>
<td>7</td>
<td>St Paul, Salem</td>
<td>Fire Away</td>
</tr>
<tr>
<td>MS MACKENNA STECHSCHULTE</td>
<td>37</td>
<td>9</td>
<td>Fort Jennings HS, Fort Jennings</td>
<td>What effect does the Stroop Effect and different genres of background music have on the concentration of workers?</td>
</tr>
<tr>
<td>MS RYLEE STEIGERWALT</td>
<td>26</td>
<td>6</td>
<td>Mapleton ES, Ashland</td>
<td>Neon Backgrounds</td>
</tr>
<tr>
<td>MS JULIA STERBENZ</td>
<td>137</td>
<td>10</td>
<td>Hudson HS, Hudson</td>
<td>How Perception Influences Taste</td>
</tr>
<tr>
<td>MS NICOLE STERIO</td>
<td>139</td>
<td>11</td>
<td>Mentor HS, Mentor</td>
<td>The Impact of Education on the Perspective of Wrongful Convictions</td>
</tr>
<tr>
<td>MS MEGAN STEVENS</td>
<td>876</td>
<td>5</td>
<td>Central College Christian Academy, Westerville</td>
<td>Does It Get Any Sweeter Than This?</td>
</tr>
<tr>
<td>MR NATHAN STEVENSON</td>
<td>258</td>
<td>8</td>
<td>St Paul, Westerville</td>
<td>The Effect of Vitamins on Plant Growth</td>
</tr>
<tr>
<td>MS MARY STIER</td>
<td>970</td>
<td>9</td>
<td>Archbishop Alter HS, Kettering</td>
<td>Testing the Five Second Rule: The Effect of Moisture Content on Bacterial Growth</td>
</tr>
<tr>
<td>MS MORGAN STILES</td>
<td>760</td>
<td>5</td>
<td>Portsmouth West MS, W Portsmouth</td>
<td>Dirty Water, Healthy Plants?</td>
</tr>
<tr>
<td>MR TIMMY JOE STOFFER</td>
<td>1058</td>
<td>7</td>
<td>East Richland Christian School, St Clairsville</td>
<td>The Effect of Close-Range Wifi on Seed Germination</td>
</tr>
<tr>
<td>MS ABIGAIL STOKES</td>
<td>313</td>
<td>8</td>
<td>Bellbrook MS, Bellbrook</td>
<td>The Science of Oxidation</td>
</tr>
<tr>
<td>MS AUDREY STONEBERG</td>
<td>954</td>
<td>5</td>
<td>Big Walnut Intermediate, Sunbury</td>
<td>Is A Dog’s Or Human’s Mouth Cleaner?</td>
</tr>
<tr>
<td>MS MARISSA STOUT</td>
<td>412</td>
<td>8</td>
<td>St Edward, Ashland</td>
<td>Lowering the Freezing Point of Water to make ice cream</td>
</tr>
<tr>
<td>MR JONATHAN STOWERS</td>
<td>1108</td>
<td>6</td>
<td>Heritage MS, Westerville</td>
<td>Alpha Particle Armor</td>
</tr>
<tr>
<td>MR JACOB STUMP</td>
<td>1069</td>
<td>7</td>
<td>St Edward, Ashland</td>
<td>The Effects of Mass and Diameter on the Velocity and Acceleration of Marbles</td>
</tr>
<tr>
<td>MR KARR STUMP</td>
<td>460</td>
<td>8</td>
<td>Arcanum HS, Arcanum</td>
<td>Advertised Storage Amounts Fact or Not</td>
</tr>
<tr>
<td>MS THERESE SUCHOSKI</td>
<td>73</td>
<td>7</td>
<td>All Saints, Cincinnati</td>
<td>Warped Words and the Stoop Effect</td>
</tr>
</tbody>
</table>
ROSTER OF STUDENT EXHIBITORS

MS CLARE SULLIVAN
Space: 709 Grade: 8
St Columban, Loveland
Zika Pesticides: Toxic Effects

MS NORA R SULLIVAN
Space: 528 Grade: 9
Athens HS, The Plains
Decontaminating Acid Mine Drainage

MS AMULYA SURABHI
Space: 189 Grade: 8
Mason MS, Mason
UV Ray’s affect on yeast

MS LACIE SURRELL
Space: 882 Grade: 11
Bloom Carroll HS, Carroll
A Study of EHT and its Effects on Brain Health

MR SANJAY SWAMY
Space: 108 Grade: 7
Mason MS, Mason
Gender and perception, is there a connection?

MR JARED SWARTZ
Space: 703 Grade: 9
Columbia HS, Columbia Station
Runoff Affects on Daphnia Magna

MR PAYTON SWARTZ
Space: 279 Grade: 12
Bloom Carroll HS, Carroll
Effects of Radiation on Organisms

MR TYLER SWEARINGEN
Space: 641 Grade: 12
West Union HS, West Union
The Effects of Torsion

MS ALLISON SWIATKOWSKI
Space: 554 Grade: 8
St Hilary, Fairlawn
Rotating Bench

MR DAVID SWITALA
Space: 689 Grade: 10
Archbishop Alter HS, Kettering
The Efficiency of Solar Cells

MS EMILY SWOPE
Space: 558 Grade: 6
Bloom Carroll MS, Carroll
The Strength of Glues

MR KOUTA TABATA
Space: 225 Grade: 8
National Inventor’s Hall of Fame School, Akron
Different Apple Peel Polymers and Their Absorption Rate

MR DEMETRIUS TALTON
Space: 1113 Grade: 8
Archbishop Lyke-St Timothy, Garfield Hts
Two Face Refractions

MS FINN TAN
Space: 1077 Grade: 8
Blended MS, Westerville
Distance and Accuracy of Catapults

MR JACKSON K TANKERSLEY
Space: 949 Grade: 11
National Inventor’s Hall of Fame STEM HS, Akron
Light Up the Night: Analyzing the Electrical Output of a Urine Microbial Fuel Cell

MR COLE TATRO
Space: 1053 Grade: 7
River View MS, Warsaw
Gauss What? A magnetic Linear Accelerator!

MS KAITLYN TAYLOR
Space: 125 Grade: 8
St Aloysius, Bowling Green
Say Cheese!

MR AARON TEEGARDEN
Space: 714 Grade: 8
St Michael Consolidated, Ripleys
Make Beverages Great Again

MS KELLY TENABLE
Space: 1021 Grade: 7
Sacred Heart of Jesus, Wadsworth
A Spuddling Temp. Test!

MS MIKAELA TENSLEY
Space: 368 Grade: 8
Youngstown Christian, Youngstown
What is the best gluten free substitute for all purpose flour when baking cupcakes?

MS KAYLA THIELEN
Space: 127 Grade: 11
Sylvania Northview HS, Sylvania
The Influence of Geographical Location on Teenage Dating Preferences

MS ABIGAIL THOMAS
Space: 946 Grade: 10
Mapleton HS, Ashland
Using T4 Phage To Kill E.Coli

MS ANNABELLE THOMAS
Space: 267 Grade: 10
Bishop Fenwick, Franklin
The Effect of Aspirin on Plant Growth

MS RILEY THOMAS
Space: 414 Grade: 6
Mapleton ES, Ashland
Which Pop has the most acid?

MS TAYLOR THORNBURG
Space: 109 Grade: 8
Incarnation, Centerville
Awe’s Effect on One’s Helpfulness

MR MASON THORNSBERRY
Space: 1041 Grade: 5
Unioto ES, Chillicothe
Does mass affect the battery life of a drone?

MS GRACE THORSTENSON
Space: 64 Grade: 10
Archbishop Alter HS, Kettering
Effect of Kinesthetics on One’s Memorization of Material

MR SAMANVITH THOTAPALLI
Space: 724 Grade: 7
Hyatts MS, Powell
A Tiny Plant with a Toxic Punch

MS ANNA TILLINGHAST
Space: 31 Grade: 7
St Rita, Solon
Can Music Affect Concentration

MR COLE TATRO
Space: 382 Grade: 9
Lehman Catholic HS, Sidney
Does Gum Affect Temperature?

MS ARIYANNA TOLES
Space: 138 Grade: 8
Archbishop Lyke-St Timothy, Garfield Hghts
Did You Notice?

MS KENNEDY TOLLIVER
Space: 1136 Grade: 12
Brookville HS, Brookville
Bioluminescence

MS FAITH TOMSIC
Space: 299 Grade: 7
Walsh Jesuit, Cuyahoga Falls
Restaurant Dining: The Dirty Truth

MS KATHERINE TERRY
Space: 392 Grade: 9
Paulding HS, Paulding
Do French Fries Take in Different Oils at Different Times

MS RILEY TERRY
Space: 392 Grade: 9
Paulding HS, Paulding
Do French Fries Take in Different Oils at Different Times
### ROSTER OF STUDENT EXHIBITORS

<table>
<thead>
<tr>
<th>Name</th>
<th>Space</th>
<th>Grade</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS KATE TRETTER</td>
<td>129</td>
<td>8</td>
<td>Do You Hear What I Hear?</td>
</tr>
<tr>
<td>MR MICHAEL TRIMBAECH</td>
<td>594</td>
<td>11</td>
<td>Tensile Strength of 3D Printing Filaments</td>
</tr>
<tr>
<td>MS VANESSA TROTTER</td>
<td>761</td>
<td>6</td>
<td>Dirty Water!</td>
</tr>
<tr>
<td>MR DALTON TRUCKSIS</td>
<td>1060</td>
<td>6</td>
<td>Pinewood Derby Weight Placement</td>
</tr>
<tr>
<td>MS SERRA TUZUN</td>
<td>80</td>
<td>9</td>
<td>The Effect of Age on Memory Based on Mnemonics</td>
</tr>
<tr>
<td>MS GRACE TYLER</td>
<td>12</td>
<td>5</td>
<td>Colored Paper and Memory</td>
</tr>
<tr>
<td>MR COLE TUCKER</td>
<td>572</td>
<td>11</td>
<td>Mars Habitation Constructor</td>
</tr>
<tr>
<td>MS ZOE THACKER TYLER</td>
<td>234</td>
<td>11</td>
<td>How does the amount of microorganisms affect soy bean growth?</td>
</tr>
<tr>
<td>MR AADIL UMERNANI</td>
<td>911</td>
<td>8</td>
<td>Metabolic Syndrome</td>
</tr>
<tr>
<td>MR NATHAN UNDERHILL</td>
<td>203</td>
<td>5</td>
<td>AllerGO</td>
</tr>
<tr>
<td>MR MIHIR VADOR</td>
<td>740</td>
<td>7</td>
<td>Sand-O-Water</td>
</tr>
<tr>
<td>MR ETHAN VALENTINE</td>
<td>1022</td>
<td>5</td>
<td>Fruit Battery</td>
</tr>
<tr>
<td>MR KHYM CHRISTIAN VALENZUELA</td>
<td>653</td>
<td>10</td>
<td>The Effect of Iron Deficiency on Chlamydomonas reinhardtii</td>
</tr>
<tr>
<td>MR SAM VAN OSS</td>
<td>291</td>
<td>5</td>
<td>L T Ball Intermediate ES, Tipp City</td>
</tr>
<tr>
<td>MR AVERY VANCE</td>
<td>365</td>
<td>8</td>
<td>Cleaning Rust is a Must!</td>
</tr>
<tr>
<td>MS ARIANNA VANKIRK</td>
<td>884</td>
<td>9</td>
<td>Survey of Primary Care Givers on Effects of Rooming-in for Newborns</td>
</tr>
<tr>
<td>MR BARRETT VANSICKLE</td>
<td>1142</td>
<td>6</td>
<td>Bird Brain! Could The Intelligence Of Different Species Of Birds Affect Migration?</td>
</tr>
<tr>
<td>MR ZACHARY J VARGO</td>
<td>1123</td>
<td>8</td>
<td>How Does Electromagnetic Fields Effect Brine Shrimp?</td>
</tr>
<tr>
<td>MR ASHWIN VEERAMANI</td>
<td>218</td>
<td>10</td>
<td>The Role of Hair Bundle Protein 7(HBP7) in the Auditory Hair Cell of Zebrafish in Mediating Hearing Function</td>
</tr>
<tr>
<td>MS VIKASINI VEERNI</td>
<td>297</td>
<td>10</td>
<td>DIY Gel Electrophoresis - Biochemical investigation of the composition of an unknown dye</td>
</tr>
<tr>
<td>MS NINA VENKATESH</td>
<td>297</td>
<td>10</td>
<td>Effect of Solubility on Dissolution Rate of Commonly Used Drugs</td>
</tr>
<tr>
<td>MR WYATT VICK</td>
<td>543</td>
<td>5</td>
<td>Wheel Size and Distance</td>
</tr>
<tr>
<td>MR MICHAEL VICKERS</td>
<td>470</td>
<td>6</td>
<td>Warsaw ES, Warsaw</td>
</tr>
<tr>
<td>MS ELIZABETH VINCENT</td>
<td>759</td>
<td>7</td>
<td>What section of Beech Creek, tree cover or no tree cover, deep or shallow water has the best water quality?</td>
</tr>
<tr>
<td>MS MICAIAH VINSON</td>
<td>958</td>
<td>8</td>
<td>The effect of drinking method on bacteria in bottled water backwash</td>
</tr>
<tr>
<td>MS TERRELYN VIRZI</td>
<td>77</td>
<td>7</td>
<td>How does the Measurement of Time Affect Eyewitness Testimonies?</td>
</tr>
<tr>
<td>MS HOPE VONDER BRINK</td>
<td>1146</td>
<td>8</td>
<td>Testing the Efficacy of Natural Ant Repellents</td>
</tr>
<tr>
<td>MS KAYLAH VORHEES</td>
<td>1089</td>
<td>8</td>
<td>The Domino Effect</td>
</tr>
<tr>
<td>MS ASHLEY PAIGE VOSLER</td>
<td>797</td>
<td>10</td>
<td>Dissolving Rates of Drugs in the Stomach</td>
</tr>
<tr>
<td>MS LEENA D VYAS</td>
<td>612</td>
<td>10</td>
<td>Winds of Change: Engineering a Wind Powered Cell Phone Charger (3 year Project)</td>
</tr>
<tr>
<td>MS CALLIE WABEKE</td>
<td>273</td>
<td>7</td>
<td>Royal Redeemer Lutheran, North Royalten Soybeans &amp; Compost</td>
</tr>
<tr>
<td>MS MACY WADE</td>
<td>110</td>
<td>8</td>
<td>Childhood Fears</td>
</tr>
<tr>
<td>MS ALLISON WAGGONER</td>
<td>1100</td>
<td>10</td>
<td>Measuring Force Through Deep Knee Bends</td>
</tr>
<tr>
<td>MR ANDREW WAGNER</td>
<td>461</td>
<td>8</td>
<td>What’s the Best Way to Create a Password?</td>
</tr>
<tr>
<td>MR HEATH WAIDELICH</td>
<td>699</td>
<td>8</td>
<td>Effect of Microwave Appliances on the Growth of Plants</td>
</tr>
<tr>
<td>MS LUCI WALL</td>
<td>626</td>
<td>7</td>
<td>Power from Water</td>
</tr>
<tr>
<td>MS NATALIE WAMMES</td>
<td>32</td>
<td>10</td>
<td>Color and Memory Recall</td>
</tr>
<tr>
<td>MR JOHN WANG</td>
<td>416</td>
<td>10</td>
<td>Tackiness of Rubber</td>
</tr>
</tbody>
</table>

---
MR ELLIOT WANNEMACHER  
Space: 768 Grade: 9  
Tinora HS, Defiance  
Experimental vs. Theoretical Probability Using The Game Risk

MR AUGUSTINE WARNER  
Space: 381 Grade: 11  
Marlington HS, Alliance  
Tannerite

MR GRANT WARNER  
Space: 869 Grade: 8  
Trinity Lutheran, Toledo  
Know Dairy, Know Yogurt; No Dairy, Maybe Yogurt

MR JAKOB WARNER  
Space: 381 Grade: 11  
Marlington HS, Alliance  
Tannerite

MS KELSIE WARNOCK  
Space: 844 Grade: 10  
Fairland HS, Proctorville  
Harboring Bacteria

MS JORDAN WASKO  
Space: 336 Grade: 11  
Columbia HS, Columbia Station  
Fast Gas

MS ELIANA WATT  
Space: 323 Grade: 8  
East Richland Christian School, St Clairsville  
Soybean Oil Vs. Diesel Fuel

MR STEVEN WEHRMEYER  
Space: 508 Grade: 7  
All Saints, Cincinnati  
Stealthy Shape: How to Make an Aircraft Invisible to Radar

MR VAN WEINMANN  
Space: 770 Grade: 6  
Birchwood School, Cleveland  
Based On Real Life Spiders And Their Webs, Is Spider-Man's Web Strength In The Amazing Spider-Man Movie Possible?

MS EMILIE WEIR  
Space: 505 Grade: 10  
Dayton Regional STEM School, Kettering  
Lifting Wings 2.0: Winglets or Sharklets?

MS PAIGE WEIR  
Space: 825 Grade: 6  
West Geauga MS, Chesterland  
Cancer Research

MS HALEY WEIS  
Space: 376 Grade: 8  
St Paul, Westerville  
The Effect of Different Solutes on the Freezing Point of Water

MS SARON WELDEMICAEL  
Space: 812 Grade: 8  
Holy Spirit, Columbus  
Tooth vs. Decoy

MR JOHN J WELLS  
Space: 928 Grade: 11  
Carroll HS, Dayton  
The Antimicrobial Effects of Bee Propolis on MRSA, VRE, S. auerus and S. pyogenes

MS KASEY WELLS  
Space: 20 Grade: 6  
John C Dempsey MS, Delaware  
Fast Food: Does Peppermint Affect a Human's Reaction Time?

MR LUKE WENNING  
Space: 533 Grade: 7  
Immaculate Conception, Columbus  
What “Wood” You Build With?

MS EMMA WETERHEIDE  
Space: 11 Grade: 8  
Holy Angels, Sidney  
Computer Testing vs. Paper Testing

MR VANCE WETZEL  
Space: 460 Grade: 8  
Arcanum HS, Arcanum  
Advertised Storage Amounts Fact or Not

MR CALEB WHEAT  
Space: 309 Grade: 6  
Fairfield Christian Academy, Lancaster  
What cleaning product removes protein and bacteria easiest and safest

MR AYDEN WHEELER  
Space: 397 Grade: 6  
Warsaw ES, Warsaw  
Sugar Science: Which Concentration of Sugar Produces the Most Alcohol?

MS VIVIANA WHEELER  
Space: 1153 Grade: 7  
Notre Dame, Portsmouth  
Lure One In

MS ELIZABETH WHITE  
Space: 251 Grade: 9  
Rutherford B Hayes HS, Delaware  
The Effects of Ionizing Radiation on the Short-Term Growth of Soybean Plants

MS BLAKE WHITFORD  
Space: 937 Grade: 10  
Troy HS, Troy  
Milk Microbial Growth

MS ANNA K WHITING  
Space: 43 Grade: 7  
Walnut Springs MS, Westerville  
Birth Order and Personality Type

MS HAILEY WICK  
Space: 180 Grade: 11  
Lehman Catholic HS, Sidney  
Osmosis: Observing The Net Diffusion of Water Molecules

MR ERIC WIEGING  
Space: 201 Grade: 8  
Fort Jennings HS, Fort Jennings  
The Electrolyte Challenge

MS MIRACLE WILCOXSON  
Space: 206 Grade: 9  
Dayton Regional STEM School, Kettering  
Milk Proteins

MS JILLIAN WILDE  
Space: 231 Grade: 7  
Walsh Jesuit, Cuyahoga Falls  
Growing Soybeans: Does Soil Matter?

MR KASEY WILKEN  
Space: 910 Grade: 11  
Miami Valley Career Tech Ctr, Clayton  
Effect of Warm-Ups on Performance

MR JARED WILKES  
Space: 366 Grade: 12  
Fairland HS, Proctorville  
Liquid Ice

MS NATALIE WILKINS  
Space: 385 Grade: 11  
Columbia HS, Columbia Station  
Rethink your Drink

MR AIDAN WILLIAMS  
Space: 877 Grade: 8  
St Paul, Westerville  
How much sugar is in drinks?

MR ASH WILLIAMS  
Space: 806 Grade: 8  
DeColores Montessori, Greenville  
The Effect of Acidic Drinks on Teeth

MR CORBIN WILLIAMS  
Space: 892 Grade: 7  
Walton Springs MS, Westerville  
Effect of pH on Apple Preservation

MR TRENTON WILLIAMS  
Space: 892 Grade: 7  
Rock Hill MS, Ironton  
Does Red Dye Affect Cognitive Ability?
MS ZOE A WILLIAMS
Space: 1111 Grade: 9
Athens HS, The Plains
Cosmic Particle Reactions In A Cloud Chamber

MS ALIAH WILLIAMSON
Space: 353 Grade: 5
Warsaw ES, Warsaw
Salt vs. Sugar

MR ADAM WILSON
Space: 72 Grade: 6
Royalmont Academy, Mason
Touching Memory: What effect does touching an object have on one’s ability to remember the object?

MR LUKE WILSON
Space: 643 Grade: 6
Ripley-Union-Lewis-Huntington MS, Aberdeen
Solar Power Output vs Temperature

MR JOSEPH WINDHOLTZ
Space: 424 Grade: 8
St Francis DeSales, Newark
Does Liquid Fabric Softener Affect the Flammability of Cotton?

MS EVY WIRTH
Space: 21 Grade: 8
Buckeye Valley Local MS, Delaware
Color vs Gender

MR DREW WOLF
Space: 927 Grade: 12
Upper Arlington HS, Upper Arlington
Comparing the effectiveness of soy honey from Apis mellifera to antibiotics Kanamycin, Ampicillin and Chloramphenicol against Escherichia coli DH5-Alpha

MS GRACE WOLF
Space: 607 Grade: 6
Ohio Virtual Academy, Toledo
What Affects Surface Wetting?

MR JACK WOLF
Space: 523 Grade: 7
Granville MS, Granville
Measuring the Effectiveness of Hot and Cold Packs

MS NINA WOLF
Space: 301 Grade: 10
St Vincent St Mary, Akron
The Effect of Temperature on Paper Chromatography

MR IAN WOLFE
Space: 687 Grade: 9
Bloom Carroll HS, Carroll
The Effects of Temperature on Solar Panel Efficiency

MR CHASE WOLFFORD
Space: 539 Grade: 5
Charles Huber ES, Huber Hts
Which Truss Bridge Design Holds More Weight?

MS KY’SONNA WON
Space: 4 Grade: 7
Sacred Heart of Jesus, Wadsworth
Mnemonics

MR MARK JOSEPH WOOD
Space: 787 Grade: 7
St Mary Immaculate Conception, Wooster
Is Your Cutting Board Making You Sick?

MS SAMANTHA WOODGEARD
Space: 399 Grade: 12
David H Pontiz Career Technology Center, Dayton
Finding Impurities within Bayer and Pontiz CTC Aspin

MS SARAH YACOUB
Space: 916 Grade: 10
Archbishop Alter HS, Kettering
Is Your Cutting Board Making You Sick?

MR SIMON YACOUB
Space: 81 Grade: 8
Incarnation, Centerville
Do colors affect heart rate variability?

MR JT YAN
Space: 990 Grade: 10
Upper Arlington HS, Upper Arlington
Effects of rates of clathrin-mediated endocytosis after membrane tension manipulation

MS ALAINA YARWICK
Space: 919 Grade: 8
Bethel JS, Tipp City
Effectiveness of Soap

MS CHRISTINA YATES
Space: 789 Grade: 7
St Adalbert, Berea
Are Childproof Containers Really Childproof?

MR ANDREW YING
Space: 429 Grade: 8
Walnut Hills HS, Cincinnati
The Effects of Voltage and Salt on Electrolysis

MS KILEY WRAY
Space: 47 Grade: 5
Madison Christian School, Groveport
Music of the Mind

MS HANNAH WRIGHT
Space: 879 Grade: 12
Oakstone Academy, Westerville
Gastric Acid and The Food Groups

MS ISABEL WU
Space: 443 Grade: 10
Hudson HS, Hudson
Neural Network Studio

MS MINJUE WU
Space: 851 Grade: 11
Upper Arlington HS, Upper Arlington
CRISPR/Cas9 Modification of Cancer Gene Expression in Human Cells

MS WILLOW WYMER
Space: 809 Grade: 8
St Aloysius, Bowling Green
Sip All Day, Get Decay

MR PATRICK WYNNE
Space: 1024 Grade: 7
St Raphael, Bay Village
Under Pressure: How Sand Affects the Strength of Concrete

MS NINA WOLF
Space: 301 Grade: 10
St Paul, Westerville
The Effect of Ship Design on Cargo
The Ohio Academy of Science

ROSTER OF STUDENT EXHIBITORS

**MR JASON ZEHALA**  
Space: 627 Grade: 8  
St Paul, Westerville  
Maximizing Solar Oven Performance

**MS AVA ZELEK**  
Space: 91 Grade: 6  
St Mary Central, Martins Ferry  
What Color Influences Memory the Best?

**MS ALICE ZHANG**  
Space: 321 Grade: 10  
Fairland HS, Proctorville  
Candy Dye Molecules

**MS TIAN ZHANG**  
Space: 758 Grade: 8  
Athens MS, Athens  
Nutrients in Strouds Run

**MR JESSE B ZHU**  
Space: 628 Grade: 12  
Upper Arlington HS, Upper Arlington  
The analysis and dependability of weld stress models

**MS ALYSSA ZIEGLER**  
Space: 261 Grade: 10  
Horizon Science Academy, Columbus  
Hydroponics

**MR JACOB ZIEGLER**  
Space: 725 Grade: 7  
St Joseph, Sylvania  
What Material Best Filters Algae From Water?

**MS MOLLY ZIMMERMAN**  
Space: 625 Grade: 7  
Ada HS, Ada  
Power By Water

**MR SIMON ZIMMERMAN**  
Space: 294 Grade: 7  
Village Academy, Powell  
Which Orange Juice Has the Most Vitamin C?

**MR HENRY ZITZELBERGER**  
Space: 268 Grade: 6  
Zane Trace MS, Chillicothe  
Music and Plant Growth

**MR RYAN ZOLKOWSKI**  
Space: 492 Grade: 6  
St Francis Xavier, Medina  
Tsunami - I think not!

**MR ANDREW ZUEFLE**  
Space: 452 Grade: 6  
Clay MS, Portsmouth  
Does Wi-Fi use your phone battery power more?

THE NATION’S MOST EXCITING K-12 SCIENCE COMPETITION  
[ohso.osu.edu](http://ohso.osu.edu)
FACT:
You can get high quality without the high price tag. Get an affordable start to your bachelor’s degree.

Stark State College’s science degrees give you a solid background in mathematics | natural sciences | technology

// lowest tuition in the region
// associate of science general degree completely online
// also degrees in biology, biotechnology, chemistry, physics, pre-medical professional concentration
// transfer agreements with more than 40 colleges and universities, including The Ohio State University

SOLAE is an educational non-profit foundation with a program objective to use the excitement of Fantasy and Science Fiction conventions as an incentive towards creating a greater interest in science, art, costuming, and literature.
THERE ARE NO LIMITS TO HOW FAR YOU CAN GO.

From Astronomy to Actuarial Science and Biology to Environmental Science, Bowling Green State University offers an impressive variety of science programs that enable you to reach your goals of making a difference in the world.

- Excellent faculty
- Undergraduate research opportunities
- New interdisciplinary science complex opens this fall

Learn more at bgsu.edu/cas
CollegeAdvantage 529 is the smart way to save for college. Learn more at CollegeAdvantage.com

To learn more about CollegeAdvantage, its investments, risks, costs, and other important information, read the Plan’s Offering Statement and Participation Agreement available at www.CollegeAdvantage.com. If you are not an Ohio resident or taxpayer, learn if your home state offers state tax or other benefits for investing in its own 529 plan.