Booklet of Awards & Schedule of Events

2023 Central New Mexico STEM Research Challenge

March 22-26, 2023

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Berlinda & Kenneth Eras
Connie & Rodger Beimer
Ellen Green
Emily Weigel
Karen Kinsman & Holly Lowe
Mark Campbell
Mark Legan

The MANY judges who donate their time and expertise to interviewing students and evaluating projects.

HEALTH SCIENCES
OFFICE FOR DIVERSITY, EQUITY & INCLUSION

STEM-H Center

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Gianna Nilvo

2023 Central New Mexico STEM Research Challenge

March 22 - 26, 2023

EXPO NM Manuel Lujan Building

& UNM Student Union Building

SCHEDULE OF EVENTS

Visit the RESEARCH CHALLENGE VIRTUAL LOBBY for instant access to virtual Research Challenge events!

Link to the lobby will be emailed to participants and posted on our website no later than 3/20/23.

March 21 – 26 ~ Virtual Lobby Open~ visit at your convenience!

PROJECT SHOWCASE – *browse all student research projects competing in Research Challenge*

STEM HALL – *visit profiles and interactive exhibits from our sponsors and community partners*

SPEAKERS & PANELS – *view engaging discussions with STEM professionals including:*

- STEM Careers in Food Science

Tuesday, March 21

6:30 pm – 7:30 pm

Judging Workshop – ***Live on Zoom***
Students, prepare for judging day with long-time Research Challenge Master Judge Chairs Len Duda and Robert Deblassie as they provide tips to prepare for judging interviews and answer your questions.
https://hsc-unm.zoom.us/j/98967549188

Wednesday, March 22

3:00 pm – 7:00 pm

Project Set Up – *EXPO NM, Manual Lujan Building*
ALL student exhibitors must register and set up their project displays during this time. ***Doors will close promptly at 7:00 pm!***

Community Partner Showcase will also take place during set up. We are excited to host fun and informational booths from local STEM partners!
Students, complete a Community Partners Passport by visiting booths. Turn in completed passport before you leave and be entered into a raffle for prizes!

Thursday, March 23

9:45 am – 12:00 pm — **Junior Division Category Judge Interviews – *Manuel Lujan Bldg, Hall A***
STUDENTS AND JUDGES ONLY ON EXHIBIT FLOOR! Doors open at 9:30am. *9:45 is the required start time for ALL students*.

12:00 pm – 1:15 pm — **Lunch Break** —**NOT PROVIDED**—Food vendors will be available. EXHIBIT HALL CLEARED OF ALL STUDENTS.

1:30 pm – 3:15 pm — **Junior Division Special Award Interviews – *Manuel Lujan Bldg, Hall A***
STUDENTS AND JUDGES ONLY ON THE EXHIBIT FLOOR!

Exhibitors must take project board and all other materials with them when they leave at the end of the day!

Friday, March 24

9:30 am – 12:00 pm — **Hands on activities with Air Force Research Labs**
(for participating 4th & 5th grade students) – ***Manuel Lujan Bldg, Hall A***

9:45 am – 12:00 pm — **Senior Division Category Judge Interviews – *Manuel Lujan Bldg, Hall B***
STUDENTS AND JUDGES ONLY ON EXHIBIT FLOOR! Doors open at 9:30am. *9:45 is the required start time for ALL students*.

12:00 pm – 1:15 pm — **Lunch Break** —**NOT PROVIDED**— Food vendors will be available. EXHIBIT HALL CLEARED OF ALL STUDENTS.

1:30 pm – 3:15 pm — **Elementary Division Judging Interviews – *Manuel Lujan Bldg, Hall B***
STUDENTS AND JUDGES ONLY ON THE EXHIBIT FLOOR!
*Note: elementary students will be interviewed by **both** category and special award judges during this time.*

1:30 pm – 3:15 pm — **Senior Division Special Award Interviews – *Manuel Lujan Bldg, Hall B***
STUDENTS AND JUDGES ONLY ON THE EXHIBIT FLOOR!

Exhibitors must take project board and all other materials with them when they leave at the end of the day!

Sunday, March 26

5:30 pm — **Grand Awards Ceremony** – ***UNM Student Union Building***
Awards Ceremony is by invite only. Student winners, parents/guardians and teachers will be notified on Saturday if they have won an award and are invited to attend the ceremony.

*Note: **Senior Division** ~ high school; **Junior Division** ~ middle school; **Elementary Division** ~ 4th & 5th Grade*

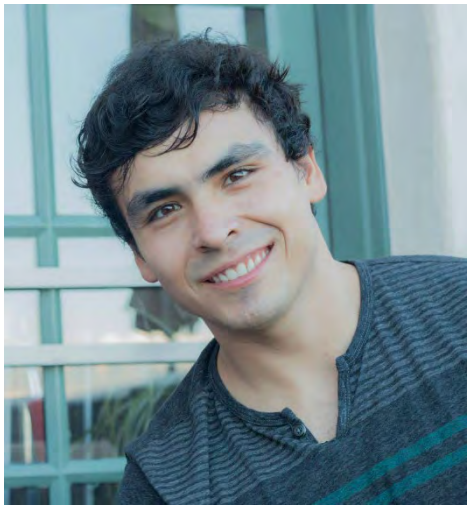
2023 Grand Awards Ceremony

Central New Mexico STEM Research Challenge

Sunday, March 26

Francisco Álvarez

R&D S&E Systems Engineer,
Sandia National Laboratories



Keynote Speaker

Francisco Alvarez has worked at Sandia National Laboratories since January 2012. Francisco started as a Mechanical Engineer in the Advanced Mechanical Design Group designing and testing mechanisms and leading mechanism projects for the Department of Energy. Francisco joined Sandia's Renewable Energy Group in November 2019, supporting the Concentrating Solar Technologies Department and the National Solar Thermal Test Facility in Albuquerque, NM. Francisco supported the development of advanced power cycles for integration with concentrating solar power (CSP) systems, specifically with efforts to use supercritical carbon dioxide (sCO_2) power cycles for electricity generation. Francisco has supported the modeling, design, construction, and testing of several CSP/sCO_2 systems at Sandia and collaborated with industry to expand to commercial scale. Currently, Francisco supports Sandia's Technical Governance and Transformation Group developing processes to improve Sandia's delivery on our commitments to the nation.

Francisco holds two Bachelor of Science degrees (Mechanical Engineering and Industrial Engineering) and a Master of Science degree in Mechanical Engineering from the University of Texas at El Paso, where he researched thermochemical reactions for fabrication of construction materials on the lunar surface and thermochemical cycles for hydrogen generation via indirect water splitting.

Byron Morton

Broadcast Meteorologist, KOAT

Master of Ceremonies

Byron graduated with a Bachelor of Science degree from the College of Geosciences at the University of Oklahoma in 1996.

Before joining the KOAT Action 7 News team in December 2001, Byron was chief meteorologist at WMSN-TV in Madison, WI, and fill-in meteorologist at its sister station, WKOW-TV. Byron has also held on-air positions at WOI-TV in Des Moines and WAOW-TV in Wausau, WI, and served as weather producer for Good Morning America, The LA Times, and Televisa Mexico.

Byron is the second forecaster in the state to earn the prestigious designation of "Certified Broadcast Meteorologist" from the American Meteorological Society (AMS), and he holds a seal of approval from the National Weather Association (NWA).

When he's not keeping an eye on the sky, Byron enjoys weight-lifting, tennis, hiking, running, and just about anything else outdoors…and of course joining us every year at Research Challenge!

Thermo Fisher Scientific Junior Innovators Challenge

Awarded to the 1st and 2nd place winners of **EACH** category in the Junior Division.

Junior Division **First & Second Place**: Certificate and an invitation to submit project to national competition

Regional Research Challenge ~ Top-of-Category Awards

Un-sponsored category awards are sponsored by operational funds donated by various companies.

First Place: $100, gold medallion and certificate
Second Place: $75, silver medallion and certificate
Third Place: $50, bronze medallion and certificate
Honorable Mention: Medallion and certificate

2023 Categories	Sponsor
Elementary Chemistry	Intel Corporation
Elementary Engineering	Intel Corporation
Elementary Life Sciences	Intel Corporation
Elementary Physical Science	Intel Corporation
Junior Animal Science	
Junior Behavioral & Social Sciences	Albuquerque Journal
Junior Chemistry	Sandia National Laboratories
Junior Computer & Mathematical Sciences	Intel Corporation
Junior Earth & Environmental Sciences	PNM
Junior Energy & Transportation	
Junior Engineering	UNM School of Engineering
Junior Materials Science	
Junior Medicine & Health	UNM School of Medicine/Health Sciences Center
Junior Microbiology	UNM School of Medicine/Health Sciences Center
Junior Physics & Astronomy	The Boeing Company
Junior Plant Science	
Senior Animal Science	
Senior Behavioral & Social Sciences	Albuquerque Journal
Senior Chemistry	Sandia National Laboratories
Senior Computer & Mathematical Sciences	Intel Corporation
Senior Earth & Environmental Sciences	PNM
Senior Energy & Transportation	
Senior Engineering	UNM School of Engineering
Senior Medicine & Health Sciences	UNM School of Medicine/Health Sciences Center
Senior Microbiology	UNM School of Medicine/Health Sciences Center
Senior Physics & Astronomy	The Boeing Company
Senior Plant Science	

Regional Research Challenge ~ Top Junior Division Winner Award

Recognition of the top **Junior Division** exhibitors.

Junior Division	**Physical Sciences:**	**First Place:** $250	**Second Place:** $200	**Third Place:** $150
	Life Sciences:	**First Place:** $250	**Second Place:** $200	**Third Place:** $150

Regional Representatives to the International Science and Engineering Fair (ISEF)

Top projects will be named ISEF Finalists and compete at ISEF in May, 2023.

Senior Division **Excellence Award:** Expense paid trip to Dallas, TX to compete in ISEF.

ISEF Finalist Awards sponsored by Nusenda Credit Union

Awarded to each regional ISEF qualifier (funds will be split evenly among team members for any team projects that qualify).

Senior Division **Excellence Award:** $250

Aerospace Corporation Award

For technical excellence in projects related to the space and nuclear enterprises.

Junior Division	**First Place**: $75	**Second Place:** $50	**Third Place:** $25
Senior Division	**First Place**: $75	**Second Place:** $50	**Third Place:** $25

AIC General Contractors Award for Best Sports Related Project

For an excellent project related to sports.

Any Division	**First Place:** S250

Albert M. Kudo Memorial Award

For an excellent project in any category in memory of Dr. Albert M. Kudo.

Junior or Senior Division	**First Place:** $100

Albuquerque African Violet Club Award

For projects which best convey information on culture, hybridizing, pest control, or other aspects relating to African Violets or other gesneriads.

Junior Division	**First Place**: $50 and invitation to display project at the African Violet Show in spring 2023.
Senior Division	**First Place**: $50 and invitation to display project at the African Violet Show in spring 2023.

Albuquerque Astronomical Society Award

For the best Astronomy related projects. Winners invited to exhibit projects at Astronomy Day. Prizes include 1-year membership in the Albuquerque Astronomical Society.

Junior Division	**First Place**: $150	**Second Place:** $75	**Third Place:** $50
Senior Division	**First Place**: $150	**Second Place:** $75	**Third Place:** $50

Albuquerque Area Extension Master Gardeners Award

For outstanding projects involving plants.

Junior Division	**First Place**: $100 gift card	**Second Place:** $75 gift card	**Third Place:** $50 gift card
Senior Division	**First Place**: $100 gift card	**Second Place:** $75 gift card	**Third Place:** $50 gift card

Albuquerque Radio Control Club Award

For outstanding exhibits in the field of aviation science. Prizes include membership to the Academy of Model Aeronautics and the Albuquerque Radio Control Club.

Junior Division	**First Place:** $75
Senior Division	**First Place:** $75

Albuquerque Rocket Society Award in Memory of Kyle Foster

For excellent projects related to rocketry or the field of aeronautics.

Junior or Senior Division	**First Place:** $100

Allen Sigmon Real Estate Group Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division	**First Place(x2):** S250

American Association of University Women Young Scientist Award

For excellent projects by female exhibitors in the categories of Physics, Computer Science, or Engineering.

Elementary Division	**First Place (x4):** $25
Junior Division	**First Place (x6):** $30

American Chemical Society Awards, Central New Mexico Section

For the projects that best demonstrate a thorough and logical approach to the investigation and observation of a chemical phenomena or property using the principles of the scientific method.

Junior Division	**First Place:** $150
Senior Division	**First Place:** $150
Junior or Senior Division	**First Place:** $150

American Institute of Aeronautics and Astronautics Award

For projects relating to the fields of Aeronautics and Astronautics.

Junior Division	**First Place (x2):** $125 & certificate. Membership in AIAA.
Senior Division	**First Place (x2):** $125 & certificate. Membership in AIAA.

American Psychological Association Award

For an exhibit recognizing outstanding research in psychology in the category of behavioral and social sciences.

Junior or Senior Division	**First Place:** Certificate

American Society of Safety Professionals Award, New Mexico Chapter

For projects related to environmental or industrial safety.

Elementary Division	**First Place:** $100	**Teacher Award:** $50
Junior Division	**First Place:** $100	**Teacher Award:** $50

American West Water Advisors Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place(x2):** S250

Argus Investment Realty, Inc. Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place(x2):** S250

Association for Women Geoscientists Award
For a female student whose project best exemplifies high standards of innovativeness and scientific excellence in the geosciences.
Junior or Senior Division **First Place:** Certificate

Association of Old Crows Award
For a project in the Elementary Division related to electromagnetic spectrometry or information operations.
Elementary Division **First Place:** $100

Austin Hudson LaPore Biochemistry Award
For projects that demonstrate research excellence in biochemistry, pharmaceutical sciences, or related field.
Senior Division **First Place(x2):** $100

Bank of Albuquerque Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place:** S250

Barb & Angelo Turiciano Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place:** S250

Benjamin Gardner, AIA, LEED, AP Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place:** S250

BlueHalo CASE (Creative Application of Science & Engineering) Award
For a project that displays excellence and creativity in the application of Mathematics, Science, and Engineering.
Junior Division **First Place:** $150 **Second Place:** $100 **Third Place (x3):** $50

Bohannan Huston Award
For outstanding Engineering projects.
Any Division **First Place(x2):** S250

Bridgers & Paxton Consulting Engineers Award
For an excellent project relating to energy efficiency and engineering that demonstrates energy conservation through analysis of existing technology or exploration of alternative technology associated with the building infrastructure, architectural systems, or the construction industry.
Any Division **First Place(x2):** S250

Broadcom Coding with Commitment Award
For a project in any category that combines STEM Knowledge and Computation/Coding in the project's research, design, or development that expresses passion for helping or improving one's community.
Junior Division **First Place:** $250 gift card & Raspberry Pi Official RP Personal Computer Kit

CBRE Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place:** S150

Center for Water & the Environment Excellence Award (UNM School of Engineering)
For a project that shows excellence and interest in water science, water resources, or water engineering.
Senior Division **First Place:** A paid summer internship (2023) in CWE's environmental engineering and water resources laboratories working in-person with CWE faculty.

Century Sign Builders Award
For an excellent project related to information technologies ("IT").
Any Division **First Place:** S250

Chalmers Ford Award
For an excellent project in any category.
Elementary Division **First Place:** $150
Junior or Senior Division **First Place:** $150

Chavez-Grieves Consulting Engineers Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place(x2):** S250

Climate Change Award

Presented to the project that demonstrates the greatest insight into climate change using the scientific method.

Elementary Division	**First Place:** $75
Junior Division	**First Place:** $75
Senior Division	**First Place:** $75

Consensus Planning Award

For a project that shows excellence in furthering sustainability through landscape architecture.

Any Division	**First Place(x2):** S250

Dave and Rhonda Hill Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division	**First Place(x2):** S250

Dekker, Perich, Sabatini Engineering Excellence Award

For an excellent project related to structural engineering

Any Division	**First Place(x4):** S250

Diane Vigerust Memorial Award

For a project by or benefiting a student with special needs.

Any Division	**First Place:** S100

Directed Energy Profession Society Award

For projects that display the best use of electromagnetic spectrum to solve or diagnose a modern problem or create a new application or capability.

Junior Division	**First Place:** $250	**Second Place:** $150	**Honorable Mention:** $50
	Teacher Award: $100	**Teacher Award:** $100	**Teacher Award:**$100
Senior Division	**First Place:** $250	**Second Place:** $150	**Honorable Mention:** $50
	Teacher Award: $100	**Teacher Award:** $100	**Teacher Award:** $100

DoD STEM Leadership Prize

For a student who demonstrates excellence in STEM knowledge, technical and problem solving skills, communication skills, creative thinking and determination to overcome challenges throughout the research project,

Junior Division	**First Place:** $100

Don't Stop Now Award

For projects in any category that show enthusiasm and promise for continued learning.

Junior or Senior Division	**First Place (x6):** $50

Dr. Donald Partridge Memorial Neuroscience Award

In memory of Dr. Donald Partridge for a project which best demonstrates and tests principles of neural science.

Junior Division	**First Place:** $100	**Second Place:** $50
Senior Division	**First Place:** $100	**Second Place:** $50

Dr. John K. Prentice "Coolness" Award

Sponsored by Randi Buck. For especially novel and ingenious projects in any category.

Junior Division	**First Place (x2):** $100
Senior Division	**First Place (x2):** $100

Duke City Commercial Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division	**First Place:** S250

Enchanted Lens Camera Club Award

For projects which either advance the state of the art of film/digital photography, or use photography as a key diagnostic in an engineering and/or science project.

Junior Division	**First Place:** $75
Senior Division	**First Place:** $75

Engineering Excellence – New Mexico Engineering Foundation

For excellence in Engineering and/or applied topic or research in Engineering, Physics, or Energy & Transportation.

Junior Division	**First Place:** $100
Senior Division	**First Place:** $100

ENLACE Statewide Collaborative Excellence Award

For excellent projects in any category.

Elementary Division	**First Place (x4):** $25 UNM Bookstore Gift Card
Junior Division	**First Place (x4):** $25 UNM Bookstore Gift Card
Senior Division	**First Place (x4):** $25 UNM Bookstore Gift Card

Explora Science Center and Children's Museum Award

For excellent projects in Chemistry, Environmental Science, Math, Microbiology or Physics.

Junior Division **First Place (x10):** $25 plus an invitation to exhibit project virtually at Explora.

FBT Architects Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S250

Geltmore RE Advisory Team Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S250

Goodman Realty Group Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S250

Greater Albuquerque Association of Realtors Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S250

Home Builders Association of Central NM Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S250

Huning, LLC Award

For an excellent project by a Valencia County student related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S250

International Test & Evaluation Association Awards, Roadrunner Chapter

For the best application of test and evaluation techniques in an experiment.

Junior Division	**First Place:** $100	**Second Place:** $50	**Third Place:** $25
Senior Division	**First Place:** $250	**Second Place:** $50	**Third Place:** $25

James Topmiller Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S350

Jaynes Corporation Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S250

Jerran Golightly Memorial Award

Awarded to the best project addressing the issues of heart disease and cardiac health, particularly in young people.

Junior or Senior Division **First Place (x2):** $100

Jim Adams Memorial Award

For an excellent project by a student faced with physical or mental challenges.

Junior or Senior Division **First Place:** $100

Karen & Tommy Hudson Award

For excellent projects related to Engineering (materials and bioengineering) or Robotics & Intelligent Machines.

Any Division **First Place(x2):** S500

Kaufman Fire Protection Systems, Inc. Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S250

Keith Meyer and Mary Meyer, Ph.D Award

For an excellent projects in the category of social sciences.

Any Division **First Place:** S300

Kiwanis Club of Coronado Awards

For excellent projects in any category.

Elementary Division	**First Place:** $25			
Junior Division	**First Place:** $100	**Second Place:** $50	**Third Place:** $50	**Fourth Place:** $25
Senior Division	**First Place:** $100	**Second Place:** $50	**Third Place:** $50	**Fourth Place:** $25

Klinger Constructors, LLC Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S250

Lawrence M. Wells, Esq. Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place(x2):** S250

Lemelson Early Inventor Prize
For an excellent invention project which demonstrates problem-solving, empathy, and entrepreneurial and environmental-friendly thinking.
Junior Division **First Place:** $100 & certificate

Maxine Grossman Award
For an excellent project in the category of Plant Science.
Junior or Senior Division **First Place:** $100

Metro Commercial Realty Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place:** S300

NAI SunVista Commercial Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place:** S300

Nancy Schmierbach Award
For an excellent project by a Valencia Country student related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place(x2):** S250

NASA Earth System Science Award
For the project that best demonstrates insight into Earth's interconnected systems. The project should incorporate studies of the different components of Earth systems, their interactions and their evolution over time.
Junior or Senior Division **First Place:** Certificate

National Geographic Award
For an excellent project that seeks solutions to the Earth's most pressing challenges, in particular, around oceans, land, wildlife, human history cultures, and human ingenuity.
Senior Division **First Place:** $100

National Oceanic and Atmospheric Administration Award
For the project whose research emphasizes NOAA's mission to understand and predict changes in Earth's environment and conserve and manage coastal and marine resources.
Junior or Senior Division **First Place:** Certificate

New Mexico Bank & Trust Awards
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place (x2):** $250

New Mexico Trout Award
For a project that supports the goals of New Mexico Trout: the study, conservation and restoration of riparian habitats.
Junior Division **First Place:** $100 and membership **Teacher Award:** $100
Senior Division **First Place:** $100 and membership **Teacher Award:** $100

Nusenda Credit Union Awards
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place(x4):** S250

Peacock Law, P.C. Award
For an excellent project that includes a novel patentable idea, concept, or device.
Any Division **First Place:** S250

REA Real Estate Advisors Award
For an excellent project related to real estate, including architecture, civil engineering or environmental issues.
Any Division **First Place(x2):** S250

Regeneron Biomedical Science Award
Awarded to an exceptional student scientist who not only demonstrates an impressive command of biomedical science and research but also embodies Regeneron's core values and behaviors, known as The Regeneron Way.
Senior Division **First Place:** $500

Regional Research Challenge Ingenious Research Award
For a project involving the testing and/or use of common materials.
Junior Division **First Place:** $100

Regional Research Challenge Junior Encouragement Awards

Sponsored by the Foreman Family. For outstanding middle school projects in **EACH** category.

Junior Division **First Place:** $35 **Second Place:** $30 **Third Place:** $25
Teacher Award: $25 to teacher of first place winners

Regional Research Challenge Scholarships to UNM

Senior Division **First Place:** A minimum $750 UNM scholarships to all 12th grade participants who enroll at UNM in the Fall of 2023 (one-time award for Fall 2023)

Richard Bild Memorial Research Challenge Award

For a student or team whose project demonstrates excellence in interdisciplinary research and who demonstrates an ongoing passion for STEM with excellent problem-solving, communication, and leadership skills.

Elementary Division **First Place(x2):** $25
Junior Division **First Place(x2):** $100 **HM:** Certificate
Senior Division **First Place(x2):** $200 **HM:** Certificate

Ricoh Regional Sustainable Development Award

For a project whose principles and technical innovations offer the greatest potential for increasing our ability to grow environmentally friendly and socially responsible businesses.

Junior or Senior Division **First Place:** Certificate

Rodey Law Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S250

Sandia Grotto Award

For a project related to cave conservation, cave related studies (cave geology, hydrology or biology such as bats, beetles, salamanders or cave microbes) or equipment technology related to cave research.

Elementary Division **First Place:** $75
Junior Division **First Place:** $75
Senior Division **First Place:** $75

Sandia Peak Tram Company Award

For an excellent project related to structural engineering or construction.

Any Division **First Place(x4):** S250

Society for In Vitro Biology Award

For the most outstanding 11th grade students exhibiting in the areas of plant or animal in vitro biology or tissue culture.

Senior Division **First Place:** Certificate

Society of Women Engineers Award, Central New Mexico Section

For an exhibit in Engineering, Physics & Astronomy, Computer Science, Environmental Management or Energy & Transportation.

Junior Division **First Place (x2):** $100

Springer5 Investments Award

For an excellent project by a Rio Rancho student related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S200

Springhill Suites by Marriott (Journal Center) Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S500

Studio Southwest Architects Award

For a project related to architecture.

Any Division **First Place:** S250

Sun Vista Enterprises, Inc. Award

For a project that displays innovation in energy use for construction and architecture.

Any Division **First Place:** S300

The Hartman + Majewski Design Group Award

For a project that displays excellence in the study or application of climate use in the built environment.

Any Division **First Place:** S150

Thomas Keleher Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S200

Titan Development Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S250

United States Agency for International Development (USAID) Award

For an exceptional project that has the potential to make an impact on addressing international development challenges.

Junior or Senior Division **First Place:** Certificate

United States Air Force Awards

Naval Science Awards for excellent individual projects in science and engineering.

Junior or Senior Division **First Place (x4):** Certificate & Tangible Award

United States Metric Association Award

For a project that involves a significant amount of quantitative measurement and which best uses the SI Metric System.

Junior or Senior Division **First Place:** Certificate of achievement

United States Navy and Marine Corps Awards

Naval Science Awards for excellent individual projects in science and engineering.

Junior Division **First Place:** Certificate of achievement
Senior Division **First Place:** Certificate of achievement and $50

University of New Mexico College of Pharmacy Awards

For a project related to the Pharmaceutical Sciences which best demonstrates an innovative problem, the scientific approach to the problem, the methodology for solving the problem, and the scientific interpretation of the results.

Elementary Division **First Place:** $100
Senior Division **First Place:** $200 **Teacher Award:** $200

University of New Mexico Health Sciences Center Awards

For excellent projects in each of the categories of Medicine & Health and Microbiology

Junior Division **First Place:** $150 **Second Place:** $100 **Third Place:** $50
Senior Division **First Place:** $150 **Second Place:** $100 **Third Place:** $50

UNM Brain & Behavioral Health Institute Research Award

For projects that demonstrate excellent research and presentation in the area of brain and behavioral health.

Junior Division **First Place:** $200
Senior Division **First Place:** $200

U.S. Stockholm Junior Water Prize - Water Environment Federation

For an outstanding project related to water quality, water resource management, water protection, water treatment.

Senior Division **First Place (x3):** Certificate and possible advancement to State Stockholm competition.

WaFd Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x2):** S500

Wells Fargo Bank Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place:** S200

Wilger Enterprises Award

For an excellent project related to real estate, including architecture, civil engineering or environmental issues.

Any Division **First Place(x4):** S500

WSP USA, Inc. Innovation & Sustainability Award

For excellent projects demonstrating innovation and sustainability.

Junior Division **First Place:** $100
Senior Division **First Place:** $100

Yale Science and Engineering Association, Inc. Award

For an outstanding 11th grade student exhibiting in the area of Computer Science, Engineering, Physics or Chemistry.

Senior Division **First Place:** Certificate

Congratulations to all the student participants and winners!

27	7	31	88	22	16
Co	N	G (a)	Ra	T (i)	S
Cobalt 58.933	Nitrogen 14.007	Gallium 69.732	Radium 226.025	Titanium 47.88	Sulfur 32.066

BEN RAY LUJÁN
NEW MEXICO

498 RUSSELL SENATE OFFICE BUILDING
WASHINGTON, DC 20510
(202) 224-6621

United States Senate
WASHINGTON, DC 20510

COMMITTEES:
COMMERCE, SCIENCE, AND TRANSPORTATION
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AGRICULTURE, NUTRITION, AND FORESTRY
HEALTH, EDUCATION, LABOR AND PENSIONS
INDIAN AFFAIRS
BUDGET

March 26, 2023

Dear Research Challenge Participants,

Congratulations on competing in the 63rd Annual Central NM STEM Research Challenge. I am proud to represent such impressive and motivated young New Mexicans. You should be proud of the hard work it took to get here, and I wish you the best of luck.

Communicating science effectively is as important to the future of our nation as scientific endeavor and innovation itself. We need your talents and expertise right here in New Mexico—at our military bases, national labs, universities, and companies, large and small. May you look back on this as a day that motivated you to become a problem solver in your community.

I am confident that New Mexicans will be at the forefront of innovation as America advances technologically, develops strategies to combat climate change, fights dangerous diseases, and advances our nation's space program. Please continue the great work, never stop asking questions, and keep looking for innovative solutions to all the grand challenges we face.

I join with your families, communities, teachers, and classmates in celebrating all that you have accomplished. Once again, congratulations for your participation in this prestigious event, and I look forward to hearing about your future successes and accomplishments.

Sincerely,

Ben Ray Luján

Ben Ray Luján
United States Senator

MELANIE A. STANSBURY
MEMBER OF CONGRESS

COMMITTEE ON NATURAL RESOURCES
RANKING MEMBER, SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

COMMITTEE ON OVERSIGHT AND ACCOUNTABILITY
SUBCOMMITTEE ON ECONOMIC GROWTH, ENERGY POLICY, AND REGULATORY AFFAIRS
SUBCOMMITTEE ON GOVERNMENT OPERATIONS AND THE FEDERAL WORKFORCE

Congress of the United States
House of Representatives
Washington, DC 20515–3101

NEW MEXICO
FIRST CONGRESSIONAL DISTRICT

WASHINGTON, D.C. OFFICE
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WASHINGTON, D.C. 20515
(202) 225–6316

ALBUQUERQUE OFFICE
6301 INDIAN SCHOOL RD NE
SUITE 420
ALBUQUERQUE, NM 87110
(505) 346–6781

March 26, 2023

Dear Research Challenge Participants,

Congratulations on your participation in the 63rd Annual Central NM STEM Research Challenge. I am so proud of our next generation of scientists, engineers, and innovators and the passion that you have demonstrated for furthering knowledge in your respective fields.

I am impressed by the dedication and hard work that you have put into your projects, and confident that your efforts will be rewarded by the amazing opportunities that lie ahead of you. This competition provides a platform for you to showcase your skills and knowledge, and each project is a testament to its creator's unique talents and creativity. These experiences will not only deepen your knowledge and understanding of your fields, but also provide you with valuable insights into the various paths that are available to you.

STEM-H workers are critical to the health and sustainability of our communities—to finding solutions to complex challenges like global warming, cancer, world hunger, disappearing habitats, crumbling infrastructure, and much more. As a STEM educator, I am fighting to protect our precious water and lands, address the climate crisis and create clean energy jobs for communities across our state and country. New Mexico is relying on future STEM leaders, such as yourselves, to continue to find innovative solutions to some of the greatest issues facing our communities.

I join your family, friends, and classmates in applauding your efforts. Once again, I extend my warmest congratulations on your participation in this year's Central NM STEM Research Challenge, and I wish you the best of luck in your future endeavors.

Sincerely,

Melanie A. Stansbury

Melanie A. Stansbury (N.M.-01)
Member of Congress

March 26, 2023

Dear Research Challenge Participants,

As President of The University of New Mexico, it is my privilege to welcome you to UNM for the 63rd Annual Central New Mexico STEM Research Challenge. It is our pleasure to have you here, and Lobos everywhere congratulate you on all that you have accomplished.

UNM is New Mexico's only comprehensive, Carnegie-designated Research 1 university, which means we are considered to have "very high research activity." What this *really* means is that innovation infuses everything we do, from business to biochemistry, English to engineering. Our diverse research and creative works enable student success, engage local and global communities, foster innovation, and create new knowledge. As we like to say at UNM: our innovation is as limitless as our imagination.

And that's why you're here today. We are proud to encourage each of you, the next generation of STEM professionals, to innovate and develop revolutionary ideas that will serve our state, our nation, and our planet. This long-running competition, which can trace its origins all the way back to 1960, is a big step in preparing you for your future career in STEM—whether in academics, at our government facilities or national laboratories, in a tech startup, or maybe in something we haven't even dreamed of yet.

Many former participants of this competition have gone on to win international prizes and recognition, invent something new—and receive a patent for it—teach in universities around the world, or even become the director of an academic research laboratory. New Mexico is home to countless world-class scientist and engineers, living and working in communities around the state, bringing their expertise and energy to every corner of the Land of Enchantment.

As we continue to advance into an increasingly digital and virtual age, I am confident that New Mexicans will be enthusiastically leading the charge into the future, developing strategies to combat climate change, fight disease, and explore the farthest regions of our universe. I hope you will never stop inventing, never stop innovating, and never stop asking questions; your curiosity is the key to finding innovative solutions to the challenges we face locally and globally.

I can't wait to hear more about all you've accomplished, and I hope you'll consider bringing your imagination and ingenuity to The University of New Mexico. Whatever your future holds, I wish you the utmost success.

I know how much work it took to get here, and the Lobos are proud of each and every one of you. We also know that you still have plenty of work ahead this weekend, so we'll let you get to work!

Have a great competition and thank you again for joining us at The University of New Mexico.

Warm regards,

Garnett S. Stokes

Garnett S. Stokes
President

Dear Research Challenge Participants,

I want to congratulate you on your accomplishments, recognize the hard work it took to get here and wish you the best of luck as you participate in the 63rd Annual Central NM STEM Research Challenge. Thank you for taking on this challenge and please know that I am extremely proud of every one of you.

There is no doubt that this year's competition will prepare you for your future academic and career path.

Many former participants have ventured on to win international competitions, secure patents and continue their education, as well as pursue careers at prestigious institutions around the world.

Our state is home to world-class scientists and engineers at our universities and national laboratories. I'd like to encourage each of you, the next generation of STEM professionals, to think big and pursue revolutionary innovations that will serve our state and nation, and improve lives everywhere.

I am confident that New Mexicans like you will be at the forefront as America advances the Digital Age, develops strategies to combat climate change, fights dangerous diseases and advances our nation's space program. Please continue the great work, never stop asking questions, and keep looking for innovative solutions to all the grand challenges we face!

I look forward to hearing about your achievements and I wish you success in your future endeavors.

Best Wishes,

Douglas Ziedonis, MD, MPH
Executive Vice President, UNM Health Sciences
CEO, UNM Health System

HEALTH SCIENCES
OFFICE FOR DIVERSITY, EQUITY & INCLUSION

March 26, 2023

Dear Central NM STEM Research Challenge Participants,

Congratulations to each one of you on your accomplishments over the course of this competition. The 63rd Annual Central New Mexico STEM Research Challenge is a premier opportunity to gain exposure to the important areas of Science, Technology, Engineering, Mathematics and Health Sciences (STEM-H). I hope this experience has sparked and strengthened your passion for the many career opportunities within these fields.

The hard work you have put into expanding your knowledge is a testament to your drive, creativity and ingenuity. I encourage each of you, our future STEM-H leaders, to continue to innovate and develop revolutionary ideas that will improve the lives of New Mexicans, and the broader national and global community. Continue to Dream BIG… I know you can achieve it!

Opportunities like the Research Challenge will help to guide you throughout your educational journey as talented and motivated students and leaders. Today I join you in celebrating this accomplishment. I am impressed by and proud of the determination you have all shown in completing exceptional projects you can all now share with our community.

Thank you to all who have committed their time to ensuring this event is a resounding success year after year. I look forward to seeing you reach new heights, and feel very fortunate to share in this opportunity with each of you.

Sincerely,

Valerie Romero-Leggott, MD
Vice President
Executive Diversity, Equity & Inclusion Officer
Endowed Professorship for Equity in Health
University of New Mexico Health Sciences Center

Professor of Family and Community Medicine
Executive Director, Combined BA/MD Degree Program
University of New Mexico School of Medicine

OFFICE OF THE VICE PRESIDENT FOR RESEARCH

Dear Research Challenge Participants,

Congratulations on participating in the 63rd Annual Central NM STEM Research Challenge. Your hard work and perseverance in preparing for this event will serve you well in all of your future academic and professional endeavors. Thank you for taking on this challenge and know that I am truly impressed with your drive, creativity, and innovative spirit.

As a scientist and researcher, I know that completing a research or engineering project during the best of times is difficult and can present many obstacles that must be overcome. I applaud your interest in discovery and encourage the curiosity you possess to explore new territory and tackle new challenges. Our state is home to world-class scientists and engineers, many of whom started out just like you in local and regional competitions. I believe many of you will ultimately join their ranks and contribute to the advancement of the digital age, produce solutions to global climate change, develop innovative treatments for a range of health issues, and create new products that improve our daily lives. As Vice President for Research at The University of New Mexico, I also encourage you to explore the many quality programs in science and engineering that UNM has to offer.

I also recognize this event could not be possible without every parent, teacher, mentor, friend, volunteer, and sponsor who works alongside a student during every research project. Team effort is how NASA and the Navy Seals succeed, and how we will solve the world's most challenging problems – we are truly better together!

I hope you take a moment to genuinely enjoy every aspect of this unique event, while continuing to ask questions of yourself and the other participants to truly understand more about our amazing world and what we are capable of achieving. I look forward to learning more about your successes in the years to come.

Best of luck in the 2023 Central NM STEM Research Challenge!

Sincerely,

Ellen R. Fisher (Mar 15, 2023 12:48 MDT)

Ellen R. Fisher, Ph.D.
Vice President for Research
Professor of Chemistry

March 26, 2023

Dear Students,

I commend you for participating in the 63rd Annual Central NM STEM Research Challenge. The hard work you have put into expanding your knowledge within the science, technology, engineering, and/or mathematics fields is a testament to your drive, creativity and intelligence.

I am so proud of the hard work, dedication, perseverance, and grit you showed as you figured out how to doing things differently, solve issues creatively, and come out with a completed project you are now sharing with our community.

I encourage you to pursue your interest in science, technology, math, engineering, or health professions. STEM-H jobs contribute to society in very important ways - scientists and others are working to find solutions for climate change, disease, world hunger, threatened habitats, weak infrastructure, cybersecurity threats, the need for complex technologies and much more." As these careers grow in New Mexico and nationwide, we need more students pursuing STEM-H careers to ensure our state and our country remain competitive and at the forefront of scientific thought and discovery.

I join your family, friends and classmates in applauding all your efforts. I know we will continue to see great things from each of you.

Sincerely,

Amy Miller

Amy Miller
President
UNM Alumni Association

2023 Central New Mexico STEM Research Challenge

Projects and virtual materials (abstract, virtual display board) can be viewed in the online Project Showcase. Click on link or scan QR code and then enter **KEY: CNMSRC2023**

Elementary Chemistry

ECHEM-1 Darryl Karpe *The Effects of Soil Types on Fossil Formations*

ECHEM-2 Alexandria Nance & **Corinna Vick** *Orbeez! Expansion in Different Liquids*

ECHEM-3 Conner Stone *Citrus Zap*

ECHEM-4 Jonathan Shockley III *Blowing Up Biogas*

ECHEM-5 Tashley Robinson *What Brand of Popcorn Leaves the Least Amount of Un-Popped Kernels?*

ECHEM-6 Ethan McMillan *Fruit Powered Batteries*

ECHEM-7 Adelaide Wells *Low Pressure Chocolate Chip Cookies*

ECHEM-8 Allison Lomax *What Temperature of Water will be Better for Crystal Growth?*

ECHEM-9 Yusra Alawawdah *Bright White or not Quite*

ECHEM-10 Camylle Hubbard *The Effects of Warm Wind and Water Temperature on Water Evaporation*

ECHEM-11 Andrew MacLean *Does Soap Conduct Electricity?*

ECHEM-12 Lyla Del Curto *Gummy Bear Osmosis*

ECHEM-13 Antonio Bachicha III *Do Crystals Grow Better in the Light or the Dark?*

ECHEM-14 Genesis Behrend *Glowing Bouncy Eggs Experiment*

Elementary Engineering

EENG-15 Sarvin Saiju *Balloon Powered Car*

EENG-16 Bonnie Zhang *Which Type of Reusable Material will Work Best as a Humidifier Filter?*

EENG-17 Maria Penn *Structures with Marshmallows*

EENG-18 Cooper Garvin *Robotic Hand*

EENG-19 Gareth Jones *Manual Electromagnetic Generator*

EENG-20 Elena Schwarz *From Solar to Electric*

EENG-21 Adelaide Hardesty *Theremin*

EENG-22 Heath Linam *How can Artificial Intelligence Help an Individual User Play Games such as Tic Tac Toe?*

EENG-23 Rustin Morgan *Solar Chefs*

EENG-24 Caroline Aldrich *Catching the Wind*

EENG-25 Connor Cho *Parachutes: Does Size Matter?*

EENG-26 Jeremy Anaya *Paper Folds in Flight*

EENG-27 Anaya Faruk *Science Behind the Rocket!*

Elementary Life Sciences

ELIFE-28 Caileigh Hulskamp *Capillary Action and Stem Length*

ELIFE-29 Stormy Deubel *Rot or Not*

ELIFE-30 Diego Pohl *A Tasty Experiment*

ELIFE-31 Lily Gray *Air Particles and Air Qualities*

ELIFE-32 Brenden Sanchez *Does Gender Affect Peripheral Vision?*

ELIFE-33 Amany Jrifat *What Doesn't Kill You, Makes You Stronger*

ELIFE-34 Ghalia Mansour *How to Save Your Teeth with PH*

ELIFE-35 Aurelia Hoffman *Do Rolly Pollies Prefer White Potatoes or Sweet Potatoes?*

ELIFE-36 Reighley Stark *Save Your Granny*

ELIFE-37 Victor Prospero *The Plant Language*

ELIFE-38 Elliott Carroll *Brain Drain: Age and Memory*

Elementary Physical Sciences

EPHYS-39 Payton Brand *The Effect of Moon Phases on Ocean Tides*

EPHYS-40 Andrew Auyang *Zap! Choose Your Blanket Wisely! What Materials Create the most Static Electricity?*

EPHYS-41 Vanessa Castro *Producing Light Using Peltier Tiles*

EPHYS-42 Kiana Sandoval *Temperature Effects on Sounds Heard in Space*

EPHYS-43 Cecilia Learn *The Light & Eye*

EPHYS-44 Noah Juancho *What Colors Absorb the most Heat?*

EPHYS-45 Aayah Momani *M&M Math*

EPHYS-46 Kymia Wortman *The Magic of Hot Air*

EPHYS-47 Zaiden Moore *Keep it Cool*

EPHYS-48 Aria Maes *The Yeti Mug Challenge*

EPHYS-49 Ethan McCarthy *Aerodynamics*

EPHYS-50 Dylan Martinez *The Height of Oobleck*

Junior Animal Science

101 Anderson Stoker *Using Ant Graphs to Test Ant Communication Skills*

102 Sienna Salvas *What Treat do Cats Prefer?*

Junior Behavioral & Social Sciences

201 Saina Nyalakanti *Does the Brain Process Colors, Words, or Shapes First when Giving Conflicting Messages?*

202 Pearlheart Salazar-Breneiser *Dreams*

203 Ella Duque & **Joshua Montano** *Sugar Hype*

204 Reanad Almanasra *Testing Middle Schoolers with the Stroop Effect*

Junior Chemistry

301 Abby Ortiz *Rust It*

302 Laila Khalil *Vegetable Energy*

303 Amelia Richins *Surface Tension and Temperature*

304 Ella Huber *The Kinetics of In-Situ Wood Delignification*

305 Eva Benavidez *How much Borax Affects the Growth of a Crystal*

306 Emily Rodriguez *Edible Science and Our Environment*

307 Omar Terrazas *What Makes Ice Melt the Fastest?*

308 Alexandra Martinez & Manuelito Singer *How Quickly can Sucrose Convert into Glucose?*

309 Emma Gomez *Alka-Seltzer*

310 Cameron Hinker *Homemade vs. Store-Bought Shampoo*

311 Lily Sandoval *Will Pancakes Made Using Different Flours Differ in Height?*

312 J.A. Hackney *Corrosion Exposion*

313 Rania Awawda *The Chemistry of Ice Cream*

314 Mateo Madrid Larranaga *Comparing Name Brand Sunscreen to Generic*

315 Grace Grady *What Materials Produce the Best Rise?*

316 Zubeida Mohamed *M and M Colors*

317 Isaiah Holle *To Egg or Not to Egg, that is the Question!*

Junior Computer & Mathematical Sciences

401 Journey Allison *Oral Hygiene Notifier*

402 Sowmya Sankaran *An Analysis of the Code Generation Capabilities of Large Language Models*

403 Daniel Trujillo *Home Made Hard Drive*

404 Grayson Stracuzzi *How does a Computer Learn?*

405 Clara Dehority *Can a Middle School Student Solve the Beal Conjecture?*

Junior Engineering

501 David Brooke *Creating an Efficient and Inexpensive Desalination Device*

502 Aditi Ganti *Demonstration of a Reverse Osmosis Desalination System*

503 Stephen Mangu *Desalinating Water with Hydroponic Disk Mist Makers*

504 Alex Lutheran *What Materials Block Wi-Fi Signals?*

505 Teryk Singkanati *Super Sensors*

506 Layla Abdelhack *Collapsed!*

507 Patrice Romancito *Clipping Stand for a Show Sheep*

508 Ethan Eyers *How to Make an Electric Match Igniter*

509 Jarian Traxler *How does the Plane Fly?*

510 Liam Hartshorn *Interrupting the Water Cycle: The Making of an Effective "Water Generator"*

511 Carmen DorseySpitz *Time to Code*

512 Viktor Max Mangan *Belly Flop Maneuver*

513 Nathan Dewahe *Which Type of Material Works Best for a Parachute?*

514 Nicholas Gomez & **James Mcgonigle** *Will It Hold?*

515 Vincent Cichy *Which Paper Airplane Design Covers more Distance?*

516 Blake Robertson *Man vs. Machine Will Creativity Take Flight?*

517 Elijah Santos *Homemade Generator*

518 Noah Carton *Lemon bot*

Junior Earth & Environmental Sciences

601 Sophia Brown *Bacteria Against Chemicals*

602 Aanya Asoori *What Type of Soil is Best for Absorption and Retention: Wet, Moist or Dry?*

603 Achilles Orpinel-Padilla *The Forest Protector*

604 Nataly Hernandez *Three Fertilizers, Four Plant's in Each!*

605 Ahana Koushik *Detection of Real-World Microplastics and its Effect on Photosynthesis*

606 Lucia Minjares *On Thin Ice*

607 Sophia Zhang *Water Filters: How can We Reuse Them?*

608 Lorahna Law *Different Waters in Aloe Veras*

609 Elisia Encinias *Can Plants Stop Soil Erosion?*

610 Eliana Tanner *Solar Ovens*

611 Kaylee Gray *Man-Made Compostable Items: Are they Worth It?*

612 Landon De Smet *Biodigester*

613 Jannat Shaikh *What is in Your Water that Affects Plants?*

614 Andrew Gonzales *What Filters Water the Best?*

615 Penelope Lee *Growing Grass with Different Soils*

616 Logan Trias *Red, White, Green: Any of these have a Ladybug Seen?*

617 Mia Romero *RunOff & WashOut*

618 Alexander Agelastos *Hurricanes and Tropical Storms with Destructive Powers in 2019, 2020 and 2022*

Junior Materials Science

701 Peyton Kerr *Is Exterior Insulation Worth the Cost?*

702 Johann Bourg *Seeds vs. Grains Starches: The Bioplastic Question*

703 Jacob Roth *How Long Wood it Burn?*

704 Keira Gray *Good Quality vs Bad Quality*

705 Marisa Madrid Larranaga *The Plant Paper Making Process*

706 Dakota Serrano *How Vegetables & Fruits Dye Cloth*

Junior Medicine & Health Sciences

801 Abigail Baum *What Breathing Method Reduces Heart Rate the Best?*

802 Lilly Kuan *Does Wearing a Mask while Exercising Decrease Oxygen Levels?*

803 Malak Abdullah *The Many Shapes & Sizes*

804 Oliver Groves *Children's Health and Contact with Microorganisms in Outdoor and Indoor Activities*

805 Dovev Nunez *Egg-cellent Toothpaste*

806 Natavianna Dodge *Perfume Poisoning: Why Smelling Good Could Come with a Cost to Your Health*

807 Nneka Anozie *Breath Taking*

Junior Microbiology

901 Itzel Ramos *Different Water Temperatures Vs Germs*

902 Kayla Ferrer *Algae Growth*

903 Nada Hamadi *Skin Shield*

Junior Physics & Astronomy

1001 Luke Landis *Which One can Hold More Weight: Paper or Plastic?*

1002 Xavier Otero *An "Egg"cellent Amount of Air Pressure*

1003 Dima Allaham *Water Filtration*

1004 Izabella Aguilera *Light Waves Through a Pinhole*

1005 Emilio Josey *Magnets and Temperature*

1006 Catherine Sedillo *Galaxies Far, Far Away*

1007 Nevaeh Lehman *Ecstatic Static Electricity*

1008 Iris Lostetter *Appling Titius-Bode's Law to Other Planetary Systems*

1009 Violetta Troy *Are there more Red than Blue Galaxies?*

1010 Leah Toledo *Taken for a Spin*

1011 Jahzel Fishgrab *Electromagnetism - Fidgeting with Science*

1012 Giovanni DeFazio *Subatomic Particles: An Event Display in a Cloud Chamber*

Junior Plant Science

1101 Aubrey Heatly *Growing Plants on Mars*

1102 Maiya Mershon *The Effects of Seed Depth and Amount of Water on Drought Tolerant Plants*

1103 McKenna Knott *Ultimate Tomato Growth*

1104 Damien Vargas *Soil Toil*

1105 Mattie Mares *Staying Alive*

1106 Parker Velarde-Wilson *What's the Best Way to Grow Your Plants: Hydroponics, Aeroponics or Soil?*

1107 Patrick Branch *Here Comes the Sun!*

1108 Sebastian Searfoss *Drink of Doom*

1109 Griffin Wells *Which Root System Controls Topsoil Erosion most Effectively?*

1110 Anthony Arce *Growing Plants in a Magnetic Field*

1111 Harrison Reynolds *Testing Levels of Nutrients in Soil Around Native vs Invasive plants in the Bosque*

Junior Energy & Transportation

1201 Orion Gonzales *Can I Create Power from Moonlight?*

1202 Len Janert *Which Airfoil Created the Least Amount of Drag?*

1203 Konik Pearl *Maglev Trains*

1204 Wesley Lucero *Energy in a Battery*

1205 Angelica Armijo *What Shape of Wind Tunnel Best Accommodates Airflow ?*

1206 Andres Valdez *Is Solar Power a Good Source of Power for a Remote Control Car?*

1207 Rohan Patel *What is the Best Solar Panel?*

1208 Levi Toledo *How Attractive*

Senior Animal Science

1301 Allison Blanchette *The Effects of Temperature on the Rate of Butterfly Development*

1302 Lilahh Arabie *The Effects of Visual and Olfactory Stimulus on Drosophila Memory*

1303 George Privett *Diets of a Diet: How does the Introduction of Different Minerals/Vitamins Affect the Lifespan of Feeder Crickets?*

1304 Lenae Egerdahl *Electric Field Attraction on Different Species of Insects*

Senior Behavioral & Social Sciences

1401 Ana Choe *The Correlation Between MBTI and Grades*

1402 Francesca Benavidez *Does Heart Rate Affect Academic Performance?*

1403 Jacqueline Cattaneo & Pearl Nguyen *How does Gender Affect a Person's Score on the 'Stroop Test'?*

1404 Angela Hummingbird *Measuring Education Bias: Does Someone's Education Affect How they are Perceived?*

1405 Tyler Fisher *The Study of Ebbinghaus' Forgetting Curve and Scene Perception*

1406 Chloe Cavnar & **Emily Fronefield** *Change Blindness*

1407 Milania Macancela *The Rationale of Ethical Behavior*

Senior Chemistry

1501 Mohammed Nakip *Do Household Alternatives Compare to Marketed Electrolyte Replenishers?*

1502 Wonu Choe *Is LiMnO2 a Good Cathode Material?*

1503 Rowan Oglesby *Saponin Soaps*

1504 Isaiah Galbraith *Aqua Fission*

1505 Braylon Mosley *The Combustion Reaction of Firewood*

1506 Joshua Shaver *The Optimization of Growing Conditions for Large, High Quality Copper Sulfate Crystals*

1507 Charley Torres *Salt Concentration and Hydrogen Gas Production*

Senior Computer & Mathematical Sciences

1601 Gabriela Vigil *Racial Bias in Facial Recognition Technology*

1602 Haasika Reddy Jagirapu *Investigating the Periodicity of Prime Numbers*

1603 Tatsuo Braga *How Complexity Affects Supervised Neural Network Accuracy*

1604 Ohafi Faruk *Using Artificial Intelligence and Machine Learning to Predict Criminal Activity in Albuquerque*

1605 Mya Ramon *Determining Real Estate Factors that Affect Housing Prices*

1606 Jacob Trappett *Malicious URL Identification with Open-Source Security Tools*

1607 Corey Nicholas *How to Prevent SQL Injections*

1608 Thomas Chung & **Grace Kang** *Connecting the Dots: Modeling a Space-Applicable Distributed Control System Using a Matrix of Robots*

Senior Earth & Environmental Sciences

1701 Cali Leonard *Bird Banding in the Bosque*

1702 Sebastian Stoker *Analyzing the most Effective Methods for Sequestration of Aquatic Microplastics*

1703 Akansha Nanda *Investigating the Effects of Oil and Gas Exploration through Hydraulic Fracturing on Low Birth Weight*

1704 Riley Cochrell *Bacteria and Solar Distillation*

1705 Nicole Mangu *A Breath of Fresh Air: The Correlation Between Atmospheric Cleanliness and the Presence of PM2.5 and PM10 Particles in Albuquerque*

1706 Taylor Gomez & **Saanvi Kadu** *Construction of a Sustainable Hydroponics System Utilizing Distillation*

1707 Charlie Groves *Health Hazard: Particulate Matter Present in Smoke*

1708 Kaira Romero *The Effect of Burned vs. Unburned Soil on Plant Growth*

1709 Eliana Juarez *Addressing Disparities in Air Quality Monitoring: Using Machine Learning and Remote Sensing to Estimate the Distribution of PM2.5 in Mexico*

Senior Engineering

1801 Thatcher Bentley *Can Thermoplastic be Used as Windshield Protection?*

1802 Abigail Weaver *Distinguishing Color*

1803 Andrew Pareo *Using Environmentally-Friendly Materials to Engineer an Ice Chest*

1804 Heather Love *Prosthetic Hand*

1805 Aimee Linebarger *Flood Alert! Building an Indoor Water Detection System that Notifies its Users when a Flood or Sprinkler Event Occurs*

1806 Alexa Lozano *Thermo Electric Conduction*

1807 Matalena Portillos *Loose Leaf Paper*

1808 Christina Agrusa & Ryan Nguyen *Hydaulics and Legos: A Robotic Masterpiece*

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1815 Benjamin Adams *Home Design - Surviving Hurricane Force Winds*

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1819 Andrew Chavez *Fortifying Football Visors*

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1903 Henry Hostetler *Rocket Optimization*

1904 John Edwards & **Joshua Wilson** *Water-based Hydrogen and Oxygen Rotary Engine*

Senior Medicine & Health Sciences

2001 Aarush Tutiki *Efficient Allocation of Resources for Medicare ACOs*

2002 Paul Melendres *Human Cerebral Cortex Structure and a Mathematical Construct to Further Medical Research*

2003 Aditya Koushik *Deep Learning Prediction and In-vitro Validation of Novel Anti-cancer Peptides from Marine Taxa Database*

Senior Microbiology

2101 Dhruv Mody *Natural Probiotics vs. Synthetic Probiotics*

2102 Cassie Sandoval *The Effectiveness of Various Disinfectants on Hard Surfaces*

2103 Makenna Ramon *How much Bacteria Grows on Different Types of Masks After Being Worn for the Same Amount of Time?*

Senior Physics & Astronomy

2201 Alfred Jones *Constructing a De Laval Nozzle to Achieve Supersonic Flow*

2202 Hailey Fernandez *What Size Aperture is Best on a Pinhole Camera?*

2203 Carter Higgins *Using Magnets to Manipulate the Pitch of a Note*

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2205 Joel Gibeson *Comparison of Amateur and Professional Mirrors*

2206 Alan Kuehn *Magnetic Damping through Induced Eddy Currents*

Senior Plant Science

2301 Kailynn Hernandez *What are the Effects of Nanosilver on Plant Growth and Soil Quality?*

2302 Taylon Ortiz *How does pH Affect Plant Growth?*

2303 Marissa Montano *A Plants Favorite Drink*

2304 Aubrey Ytuarte *Plant Conversations*

2305 Kevin-Khanh Do-Nguyen, **Sean Rey-Vaughn** & **Alex Sitarz** *Can Yogurt Sustain Plant Life?*

2306 Isaiah Lopez *A Thorn in My Foot: The Extermination of Weeds*

2307 Abby McGee *Green Chile Plant Growth in New Mexican Soils*

2308 Claire Ross *Optimizing Compost Teas for L. sativa Growth in a Hydroponics System*

SPLANT-2309 Jacob Cummings & **Tanner Donaldson** *Going Bananas*

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