## Booklet of Awards & Schedule of Events



March 23-26, 2022

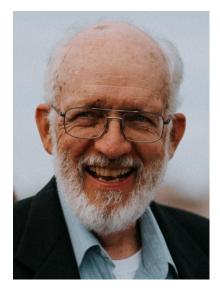


## The 2022 Central New STEM Research Challenge is dedicated to Dr. Richard Bild

Research Challenge recently lost one of its longest standing volunteer leaders, Dr. Richard "Dick" Bild. We knew immediately that we wanted to honor Richard's memory by dedicating the 2022 Central NM STEM Research Challenge to his memory. You will also notice that there are several Richard Wayne Bild Research Challenge Awards this year that are a tribute to Richard's passionate commitment to all of you, our student researchers!

Richard passed away peacefully at home on August 26, 2021 after a 2  $\frac{1}{2}$  year battle with pancreatic cancer. He was born on June 17, 1946 in Washington, DC and moved with his family to Albuquerque, NM, in 1951. He is survived by his wife of 47 years, Karen Robinson (also a long-serving volunteer RC Category Judge Chair) as well as son David & his family along with many other family and friends.





Richard attended Montezuma Elementary, Jefferson Junior High, and Highland High School in Albuquerque, graduating in 1964. He earned a BS in Chemistry from Caltech in 1968 and a PhD in Chemistry from UCLA in 1976 where he studied the composition of primitive and unusual meteorites. After postdoctoral fellowships at the Max Planck Institute for Nuclear Physics in Heidelberg, Germany, and the Lunar and Planetary Laboratory at the University of Arizona, he returned to Albuquerque in 1978 to work at Sandia National Labs, retiring in 2008 as a Principal Member of Technical Staff following a 30-year career as an analytical and geochemist, manager of the radioactive hot cell facility for many years, and quality auditor for executive management.

Richard was active in the Albuquerque community, sharing with others his passions for the great outdoors and natural sciences. As a boy, he was a Cub Scout, Boy Scout, and Explorer and as an adult was an active Scouter for 28 years with Pack 498, Troop 444 and Sandia District (district committee, adult leader training). He received the Silver Beaver award for distinguished service to Great Southwest Council and was a Vigil Honor member of the Order of the Arrow.

Richard won science fair awards at the school, regional, and state science fairs for 4 years as a student and was a competitor in the 1<sup>st</sup> Regional Science Fair here. After returning to Albuquerque he judged at what was then called the NWNM Regional Science & Engineering Fair and now is the Central NM STEM Research Challenge for 43 years including 1 year as a Category Judge, a Category Judge Chair for 24 years, and one of our esteemed Master Judge Chairs for the last 14 years. Richard was also a Category Judge Chair at ISEF when it was in Albuquerque in 1983 and 2007.

Richard was a keen outdoorsman with a deep appreciation and knowledge of New Mexico. He particularly enjoyed the Sandia Mountains, hiking the Pino Trail weekly for many years until early summer 2021 and learning to identify the numerous species of wildflowers along the trails. His birding life list counts 172 different species within the state. As a child, he became an avid stamp collector and in recent years visited over 285 towns throughout New Mexico to collect postmarks. He also enjoyed many other hobbies including photography, astronomy, and gardening.

Dick, you are sorely missed, but we will work to carry on your legacy of selfless service, compassionate leadership, and enduring commitment to encouraging students to pursue STEM careers...or at least to be STEM-literate world citizens who are well-rounded and interested in a wide variety of things in and outside of their career roles.



## 2021-22 STEM-H Center & Central New Mexico STEM Research Challenge Sponsors/Donors

Thank you to the many donors and sponsors who not only make Research Challenge possible but also support the STEM-H Center and all of its endeavors year-round.

#### 2022 Plutonium Sponsors





(Monetary and in-kind sponsors of \$20,000-\$29,000)
UNM HSC Office for Diversity, Equity & Inclusion

#### **Silver Sponsors**

(Monetary and in-kind sponsors of \$10,000-\$14,999)

Sandia National Labs General Mills Foundation National Science Teaching Association

#### **Zinc Sponsors**

(Monetary and in-kind sponsors of \$5,000-\$9,999)
Albuquerque Journal
Kupono Govn't Services/Alka`ina Foundation
Peraton
UNM School of Engineering

#### **Copper Sponsors**

(Monetary and in-kind sponsors of \$2,500-\$4,999)
The Boeing Company
NM Oil & Gas Association
PNM
UNM Alumni Association
UNM School of Medicine

#### **Aluminum Sponsors**

(Monetary and in-kind sponsors of \$1,000-\$2,499)
The Aerospace Corporation
Air Force Research Labs NM
KOAT-TV Channel 7 & Byron Morton





#### **Hydrogen Sponsors**

(Monetary and in-kind sponsors of \$5-\$249)

Albuquerque Isotopes
APS Engineering the Future
Be Greater Than Average/R4Creating
¡Explora!
NMPBS
Sandia Mountain Natural History Center
STEAMatWORK4kids
Tricore Reference Laboratories
UNM American Indian Student Services

#### **Curie Donors**

(Individual cash & in-kind donations of \$1500-\$2499)

Patricia & Leonard Duda

#### **Darwin Donors**

(Individual cash & in-kind donations of \$1000-\$1499)

Mary Louise Martignoni Trust

#### **Carver Donors**

(Individual cash & in-kind donations of \$250-\$499)
Van Pham & Khe Tang

#### **Newton Donors**

(Individual cash & in-kind donations of \$250-\$499)

Lorine & Joe De Rusha

Karen Robinson

#### **Ochoa Donors**

(Individual cash & in-kind donations of \$100-\$249)

Patrick Burton Selena Connealy Berlinda & Kenneth Eras Karen Kinsman & Holly Lowe

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



#### STEM-H Center

#### 2021-2022 ADVISORY COUNCIL

#### **Lynne Anderson**

NAIOP-NM President

#### Connie Beimer

University of New Mexico Interim VP, UNM Alumni Relations

#### **Reginald Bourgeois**

U.S. Army Corps of Engineers Chief, Strategic Initiatives Group

#### Dr. Mary Jo Daniel

UNM Office of Research Associate Vice President

#### **Robert DeBlassie**

Sandia National Laboratories Senior Technical Staff

#### Dr. Leonard Duda

Sandia National Laboratories *(retired)*Systems Engineer

#### John Gallegos

NAIOP-NM Vice-President

#### **Deborah Green**

St. Pius X High School Science Teacher

#### **Franz Joachim**

NM PBS General Manager

#### **Ray Nance**

Retired STEM Educator
UNM College of Education, PhD Candidate

#### Jennifer Nilvo

School of Dreams Academy K-12 STEM Educator

#### **Deb Novak**

NM Museum of Natural History & Science Director of Education

#### **Heather Pratt-Chavez**

UNM HSC Department of Pediatrics Associate Professor, Pediatrics Reviewer

#### Michael Rogers

Northrop Grumman Engineer

#### Dr. Valerie Romero-Leggott

UNM HSC Office for Diversity Vice-Chancellor

#### Gail Vavruska Marcum

Sandia National Labs
Senior Manager of Compensation

#### **James Vigerust**

Aptim Federal Services
Corporate Safety Officer

#### **Student Members**

Sofia Chavez Gianna Nilvo



#### March 23 - 26, 2022

## **HYBRID** ~ Online and In-Person at EXPO NM Manuel Lujan Building

#### SCHEDULE OF EVENTS

Visit the <u>RESEARCH CHALLENGE VIRTUAL LOBBY</u> 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 3/21/22.

#### 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 Aerospace
- STEM Careers in Media & Television

**SCAVENGER HUNT** – Participating students, complete our Scavenger Hunt as you explore Virtual Research Challenge for a chance to win one of nearly 40 prizes!

#### Tuesday, March 22

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/i/95797331039

#### Wednesday, March 23

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!

#### Thursday, March 24

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 truck will be on site.

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 25

9:30 am - 12:00 pm Hands on activities with Air Force Research Labs and ¡Explora!

(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 truck will be on site.

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!

#### Saturday, March 26

5:00 pm Grand Awards Ceremony – Live on Zoom and streaming on

Facebook Live

Note: Senior Division ~ high school Junior Division ~ middle school Elementary Division ~ 4<sup>th</sup> & 5<sup>th</sup> Grade

### **2022 GRAND AWARDS CEREMONY**

## Central New Mexico STEM Research Challenge Saturday, March 26



#### **Terrence Turner**

Molecular Biologist, Senior R&D Specialist, Regeneron Pharmaceuticals



#### **Keynote Speaker**

Terrence Turner is a Senior Research and Development Specialist at Regeneron Pharmaceuticals where he uses cutting edge molecular biology techniques to develop genetic constructs for disease modeling. He has a growing mastery in the field of genetic sequencing with his work using 3<sup>rd</sup> generation sequencing platforms. In November 2020, Terrence was awarded a prestigious R&D Associate Award for innovation by the Regeneron research community for introducing a potential novel way to improve current processes in the company's research (proprietary). Terrence was also involved in early research on the REGN-COV2 antibody cocktail for treatment of COVID19 and performed studies during the lockdown in April 2020.

Terrence actively contributes to corporate Diversity, Equity and Inclusion work at Regeneron. He is active in STEM educational outreach as a judge at both the Regeneron Westchester Science (WESEF) and Engineering Fair and the Regeneron International Science and Engineering Fair (ISEF).

Terrence was born and raised in East Flatbush Brooklyn NY. He attended Marist College on a partial football scholarship where he was a double major in Biomedical Sciences and Chemistry. As a two time team captain, he was also named first team academic All-District in college in 2010.

Terrence resides in the Bronx, with his wife Carrie and his son Zephaniah.

#### **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!

#### **Broadcom Masters**

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

#### **2022 Categories**

Elementary Chemistry

**Elementary Engineering/Energy** 

Elementary Life Sciences
Elementary Physical Science

**Junior Behavioral & Social Sciences** 

Junior Biology & Microbiology

**Junior Chemistry** 

**Junior Earth & Environmental Sciences** 

**Junior Energy & Transportation** 

Junior Engineering
Junior Materials Science

Junior Medicine & Health

Junior Physics & Astronomy

**Junior Plant Science** 

Junior Robotics & Intelligent Machines Senior Behavioral & Social Sciences

Senior Biology & Microbiology

**Senior Chemistry** 

**Senior Computer & Mathematical Sciences** 

**Senior Earth & Environmental Sciences** 

Senior Engineering

Senior Physics & Astronomy

**Senior Plant Science** 

#### Sponsor

Albuquerque Journal

**UNM School of Medicine/Health Sciences Center** 

**Sandia National Laboratories** 

PNM Peraton

UNM School of Engineering NM Oil & Gas Association

**UNM School of Medicine/Health Sciences Center** 

The Boeing Company

NM Oil & Gas Association Albuquerque Journal

**UNM School of Medicine/Health Sciences Center** 

Sandia National Laboratories

Peraton PNM

**UNM School of Engineering** 

The Boeing Company

#### 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, 2022.

**Senior Division Excellence Award:** Expense paid trip to Atlanta, GA to compete in ISEF.

#### ISEF Finalist Awards sponsored by Avangrid & PNM

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

Senior Division Excellence Award: \$1000

Aerospace Corporation Award

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

Junior DivisionFirst Place: \$75Second Place: \$50Third Place: \$25Senior DivisionFirst Place: \$75Second Place: \$50Third Place: \$25

AIC General Contractors Award

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

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 2022.

Senior Division First Place: \$50 and invitation to display project at the African Violet Show in spring 2022.

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 DivisionFirst Place: \$150Second Place: \$75Third Place: \$50Senior DivisionFirst Place: \$150Second Place: \$75Third Place: \$50

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: \$50, free model aircraft flight lesson, Senior Division First Place: \$100, free model aircraft flight lesson

Albuquerque Rocket Society Award in Memory of Kyle Foster

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

Junior Division First Place: \$100 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 Honorable Mention (up to 20 prizes): \$25

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 Meteorological Society Award

For creative scientific endeavor in atmospheric and related oceanic and hydrologic sciences.

Junior or Senior Division First Place (x2): Certificate of Outstanding Achievement

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

#### 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

#### ASM Materials Education Foundation Award

For the best materials engineering project that demonstrates use of materials-related concepts, some aspect of the materials paradigm, clarity in presentation, and a clear understanding of the scientific method.

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

#### 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

#### Baca & Howard P.C. Award

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

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

#### Bank of Albuquerque Award

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

**Any Division** First Place: S300

#### 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: S100

#### 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

#### Cauwels & Stuve Realty Development Advisors, LLC Award

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

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

#### CBRE Award

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

**Any Division** First Place: S100

#### 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 (2022) 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").

First Place: S250 **Any Division** 

#### **Chalmers Ford Award**

For an excellent project in any category.

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

#### Climate Change Award

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

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

#### Consensus Planning Award

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

Any Division First Place: S350

#### CREW NM (Commercial Real Estate Women) Award

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

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: S200

#### David Leith, CPA Award

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

Any Division First Place: S250

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

#### Dr. John K. Prentice "Coolness" Award

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

Junior DivisionFirst Place (x2): \$100Senior DivisionFirst Place (x2): \$100

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

#### **Enterprise Builders Award**

For an excellent project related to structural engineering or construction.

Any Division First Place(x2): S250

#### 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 Award

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

**Any Division** First Place: S300

#### Geltmore, LLC Award

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

First Place: S250 **Any Division** 

#### Goodman Realty Group Award

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

**Any Division** First Place: 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

#### Green Leaf Award

For an excellent project in the Plant Sciences Category. **Elementary Division** First Place: \$25

#### Huning, LLC Award

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

issues.

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

#### Installation Service Heating Cooling Award

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

**Any Division** First Place: S250

#### International Test & Evaluation Association Awards, Roadrunner Chapter

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

Third Place: \$25 **Junior Division** First Place: \$100 Second Place: \$50 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: S300

#### Jaynes Corporation Award

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

**Any Division** First Place(x3): 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

#### Keith Meyer and Mary Meyer, Ph.D Award

For an excellent projects in the category of social sciences. First Place: S200 **Any Division** 

#### Kiwanis Club of Coronado Awards

For excellent projects in any category.

**Elementary Division** First Place: \$25

Fourth Place: \$25 **Junior Division** First Place: \$100 Second Place: \$50 Third Place: \$50 **Senior Division** First Place: \$100 Third Place: \$50 Second 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: S200

#### KW Commercial Award

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

First Place: S200 **Any Division** 

#### 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

#### Main Bank Award

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

Any Division First Place(x2): S250

#### mauro4micro Teacher Awards

For creative and insightful science teachers in memory of Dr. Mauro Martignoni

Junior or Senior Division Teacher Award(x4): \$250

#### **Maxine Grossman Award**

For an excellent project in the category of Plant Science.

Junior or Senior Division First Place: \$100

#### **MU Alpha Theta Award**

For an individual or group project that demonstrates the most challenging, original, thorough, and creative investigation of a problem involving modern mathematics.

Senior Division First Place: Certificate

#### NAI SunVista Commercial Award

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

Any Division First Place: S250

#### Nancy Schmierbach Award

For an excellent project 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 Gas Company Awards

For an excellent project related to natural gas, utility efficiency, energy or engineering.

Any Division First Place (x4): \$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 Senior Division First Place: \$100 and membership Teacher Award: \$100 Teacher Award: \$100

#### Nusenda Credit Union Award

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

Any Division First Place(x4): S250

#### OE Solar Award

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

Any Division First Place(x2): S250

#### Old Republic National Title Insurance Award

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

Any Division First Place: \$200

#### 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 (x2): \$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

#### Regional Research Challenge Scholarships to UNM

First Place: A minimum \$750 UNM scholarships to all 12<sup>th</sup> grade participants who enroll **Senior Division** 

at UNM in the Fall of 2021 (one-time award for Fall 2021)

#### 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

First Place(x2): \$100 **HM:** Certificate **Junior Division 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.

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

#### Sandia Laboratory Federal Credit Union Award

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

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

#### Sandia Peak Tram Company Award

For an excellent project related to structural engineering or construction.

**Any Division** First Place(x3): S250

#### Society for In Vitro Biology Award

For the most outstanding 11<sup>th</sup> 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: S300

#### Sun Vista Enterprises, Inc. Award

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

First Place: S250 **Any Division** 

#### Sutin, Thayer & Browne Award

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

**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: S250

#### 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.

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

**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.

First Place: \$100 **Elementary Division** 

**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, Microbiology and Biochemistry First Place: \$150 **Junior Division** Second Place: \$100 Third Place: \$50 **Senior Division** First Place: \$150 Second Place: \$100 Third Place: \$50

#### U.S. 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

#### 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

#### Wood 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 11<sup>th</sup> 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	<b>G</b> (a)	Ra	<b>T</b> (i)	S
<b>Cobalt</b> 58.933	Nitrogen 14.007	<b>Gallium</b> 69.732	<b>Radium</b> 226.025	Titanium 47.88	<b>Sulfur</b> 32.066



Dear Research Challenge Participants,

I want to take this opportunity 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 62<sup>nd</sup> 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





March 26, 2022

Dear Central NM STEM Research Challenge Participants,

Congratulations to each one of you on your accomplishments over the course of this competition. The 62<sup>nd</sup> 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. **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. Doing a research or engineering project under normal circumstances is difficult in itself. I am impressed by and proud of the determination you have all shown to navigate these challenging times and complete 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

Munuhagot hs

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





March 26, 2022

Dear Research Challenge Participants,

Congratulations on participating in the 62<sup>nd</sup> Annual Central NM STEM Research Challenge. Your hard work and perseverance in preparing for this event will serve you well in the long run. 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. In the face of the continuing challenges of the COVID-19 pandemic, working on your project this year and bringing it to fruition is truly an accomplishment! I applaud your interest in discovery and encourage the curiosity I see in you to explore new territory. Our state is home to world-class scientists and engineers, many of whom started out just like you in their 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.

I also thank all the parents, teachers, mentors, friends, volunteers, and sponsors who worked tirelessly with you on your projects and the Research Challenge events. Team effort is how NASA and the Navy Seals succeed, and how we will solve the world's most challenging problems – we are better together!

I hope you take a moment to truly enjoy every aspect of this unique event – continue 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 2022 Central NM STEM Research Challenge!

Sincerely,

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

The University of New Mexico



505.277.6128 | Office of the Vice President for Research | MSC05 3480 | Albuquerque, NM research.unm.edu



## STATE OF NEW MEXICO PUBLIC EDUCATION DEPARTMENT 300 DON GASPAR SANTA FE, NEW MEXICO 87501-2786 Telephone (505) 827-5800

www.ped.state.nm.us

KURT STEINHAUS, ED.D. SECRETARY OF EDUCATION MICHELLE LUJAN GRISHAM
GOVERNOR

March 26, 2022

Dear New Mexico STEM Students,

I commend you for participating in the 62<sup>nd</sup> 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.

These last two years have been challenging, with all of us learning a lot about Zoom, working and learning remotely, and figuring out how to adjust to living in very different ways than what we were used to before COVID-19. Completing a research or engineering project during normal times is difficult in itself and I cannot imagine the challenges you faced as you worked on your project this year. I am so proud of the hard work, dedication, perseverance, and grit you showed as you figured out how to do things differently, solve issues creatively, and come out with a completed project you are now sharing with our community.

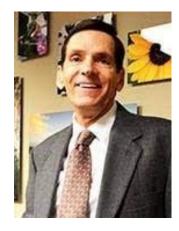
I encourage you to pursue your interest in science, technology, math, engineering, or health professions. STEM-H jobs contribute to society in very important ways - scientists and others are working to find solutions for global warming, cancer, world hunger, disappearing habitats, crumbling infrastructure, the increasing 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,

kurt Steinhaus

Kurt Steinhaus, Ed.D. Secretary of Education



BEN RAY LUJÁN NEW MEXICO 498 RUSSELL SENATE OFFICE BUILDING WASHINGTON, DC 20510 (202) 224-6621

#### United States Senate WASHINGTON, DC 20510-3105

COMMITTEES:

COMMERCE, SCIENCE, AND TRANSPORTATION
CHAR, COMMUNICATIONS, MEDIA, AND BROADBAND
AGRICULTURE, NUTRITION, AND FORESTRY
HEALTH, EDUCATION, LABOR, AND PENSIONS
INDIAN AFFAIRS
BUIGGET

March 26, 2022

Dear Research Challenge Participants,

I wish you the best of luck as you participate in this year's 62<sup>nd</sup> Annual Central NM STEM Research Challenge. Your participation in this esteemed event is a culmination of your hard work and accomplishments, and I am proud to represent such impressive and motivated young New Mexicans.

It is my hope that each and every one of you participating in this competition takes this opportunity to learn as much as you can, to challenge yourself, and to show us all what the future of STEM and innovative research looks like. In a state with a strong innovation economy, New Mexico is relying on the next generation to continue to find creative solutions to the greatest issues facing our communities.

Over the past two years, you have demonstrated great resiliency and courage in continuing to pursue your passions during the unique challenges presented by the COVID-19 pandemic. You had to be creative as you worked together with your team to complete your project, all while keeping yourselves and your communities healthy and safe. Your dedication and perseverance have now paid off, and I hope that you are proud of your final projects and the hard work they represent, as I am.

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

**United States Senator** 

Ben Ray Luján



## You Are Among the Best & Brightest...



## You'll Fit Right In!

The University of New Mexico Health Sciences Center offers graduate degree programs for health professionals in medicine, pharmacy and nursing. Our students graduate with the latest scientific knowledge, complemented by the desire to serve our fellow New Mexicans and the global community.

Our programs and degree opportunities include:

- MS and PhD in Biomedical Sciences
- Combined MD/PhD Program
- MS in Clinical Research
- Combined BA/MD Program
- Dental Hygiene Academy
- Masters of Public Health
- Medical Laboratory Sciences
- Doctor of Medicine
- Occupational Therapy

- Nursing
- Pharmaceutical Sciences
- Physical Therapy
- Physician Assistant
- Radiological Sciences
- Certificates in Translational Science and University Science Teaching
- Undergraduate Pipeline Network

For more information on becoming a student at the UNM Health Sciences Center, visit: http://hsc.unm.edu/students/



http://hsc.unm.edu



Congratulations To All
Participants At The 2022 Central
NM Science & Engineering
Research Challenge!

# EMPOWERING OUR LOBOS TO CHANGE THE WORLD

























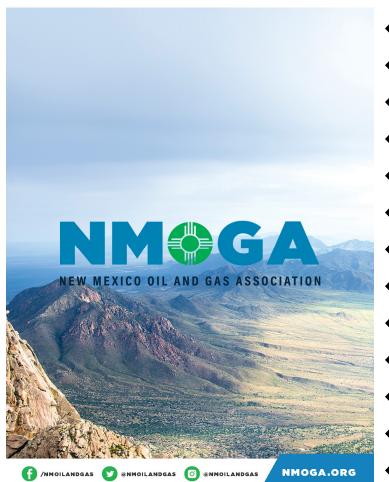
What happens when our students get involved with research? They become part of a team of extraordinary professors and world-renowned partners. They develop skills to help them better understand and explain the world. They tackle problems and find answers to questions that no one had asked before. At The University of New Mexico, we empower our Lobos to change the world.

Discover more at RESEARCH.UNM.EDU



- Increasing food security
- Advancing Sustainable Farming
- Strengthening Hometown Communities

Learn more at www.generalmills.com







At the UNM School of Engineering, you can dream even bigger.

You'll be taught by top-notch, nationally-recognized faculty with a wide range of backgrounds.

You can apply what you've learned in paid internships with engineering firms, high-tech companies, and the national labs while you're in school.

http//engineering.unm.edu



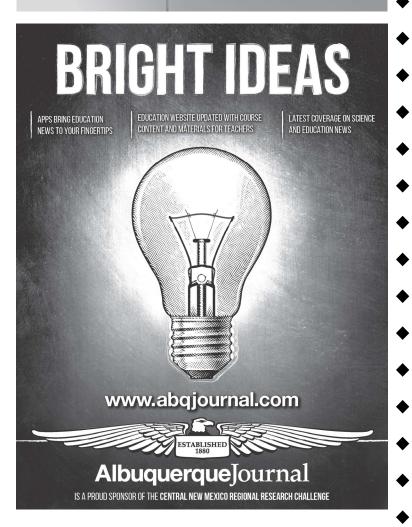
#### **The Future Starts Here**

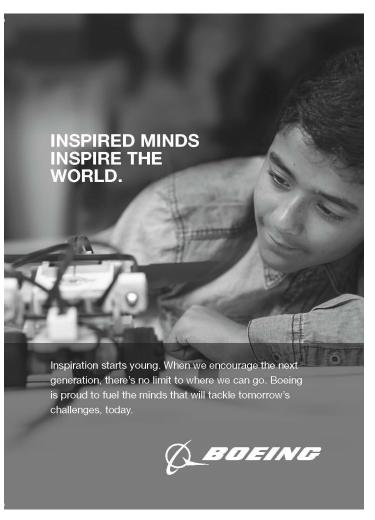
Congratulations to New Mexico's scientists, engineers, technologists and mathematicians in the making.

PNM is proud to be a sponsor for the Central New Mexico Science & Engineering Research Challenge.

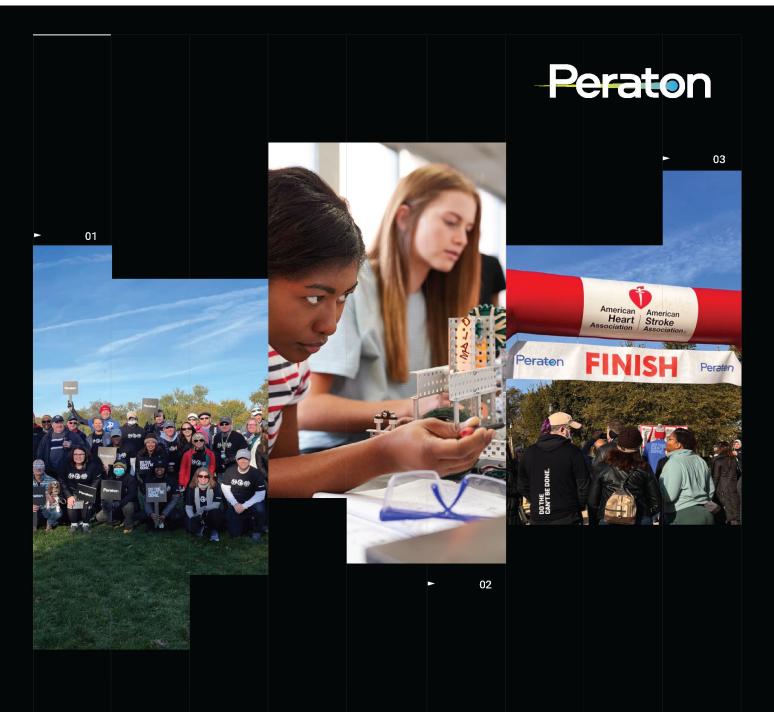












## COMMITTED TO BUILDING A BETTER WORLD

Whether it's supporting our customers' missions of consequence, developing the next generation of talent, or investing in the communities where we work and live, Peraton is committed to being part of something bigger.

peraton.com

DO THE CAN'T BE DONE.





INSPIRING THE NEXT GENERATION OF SCIENTISTS AND ENGINEERS

Sandia National Laboratories is dedicated to strengthening education in our communities by encouraging students to pursue science, technology, engineering, and math careers through our K-12 education programs.

Sandia's **CROSSLINKS PROGRAM** links our science community with schools to enrich science education for local students.

**FAMILY MATH NIGHT** provides an evening of hands-on math activities held at local elementary schools.

Our SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM) DIVERSITY PROGRAMS engage middle and high school students by linking science to the real world through hands-on science and engineering activities. Students are also provided an opportunity to explore a variety of STEM careers.

The **DOE REGIONAL SCIENCE BOWL** is an exciting tournament-style academic competition that challenges students' knowledge of math and science.

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. SAND 2014-1302P





To learn about these and other education programs visit us at www.sandia.gov.