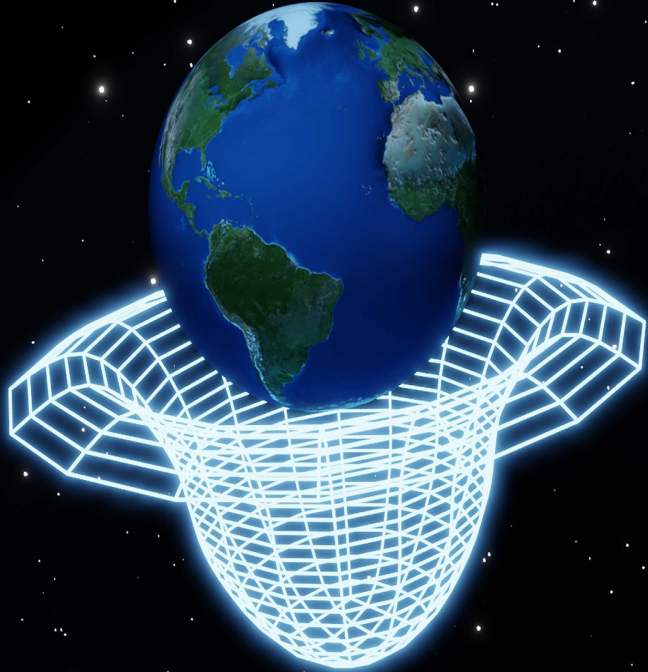


# Supercomputing Challenge 2023-2024

Simulating Greatness Since 1990



Designed by Team 13, La Cueva High School

# Welcome To the 34th Annual Awards Ceremony



# You Took the Challenge!

# You Finished the Marathon!



# Message from our Executive Director David Kratzer



# **Los Alamos National Laboratory Welcomes You!**

**Kathy Keith**

**Director**

**Community Partnerships Office**



# Consult Welcomes You!



Alphabetically by first name

Celia, David, Karen, Patty

**Congratulations to the  
2023-2024 Finalists Teams!**



# The Finalists

## **Albuquerque Academy**

## **Water Runoff and Diversion Simulation**

Team Member: Harrison Schiek

Teacher/Mentor: Jay Garcia

## **Capital High School**

## **Robotic Gunshot Detection System: SCOOBY**

Team Members: Raul Alvarado Villalobos, Craig Andree Abajo,  
Jesse Burch, Haize Christiansen, Jordan Lam,  
Britny Marquez, Edward Scott

Teacher:: Barbara Teterycz

Mentor: David Ritter

# The Finalists

**Early College Academy/Justice Code      Implementing Artificial Intelligence for Bioinformatics and Rapid Analysis of Cancer, CKD, and Heavy Metals in NHANES Datasets by Novice Programmers**

Team Member:      Aileen Ukwuoma

Teacher:      Becky Campbell

Mentors:      Robert Taylor, Justin Baca

**La Cueva High School      CARE: Care and Radiation Education**

Team Members:      Hadwyn Link, Simena Serna, Iorwen Wuyang,  
Isaac Chen

Teacher:      Jeremy Jensen

Mentor:      Mario Serna



# The Finalists

**Los Alamos High School**

**Magnetic Reconnection**

Team Member:

Tate D. Plohr

Mentor:

Dr. Mark Peterson

**Santa Fe Preparatory School**

**Computational Hydrodynamic**

**Analysis for Speed Maximization (CHASM)**

Team Members:

Luke Rand, Greta Swanson, Nandita Ganesan

Teacher:

Jocelyn Comstock

**Santa Fe Preparatory School**

***A Systems Approach to***

***Understanding Artificial Night at Light***

Team Members:

Camila Carreon

Teacher:

Jocelyn Comstock

# The Finalists

**V Sue Cleveland High      A Realtime Camera Fusion 3D Model with a Novel Feature-Matching and Star Identification-Based Calibration for Tracking Smoke Plumes**

Team Member:      Gene Huntley

Teachers:      Ashli Knoell and Leah Felty

Mentor:      Stephen Guerin

**Welch Home School      Detecting Exoplanets Through Transits**

Team Member:      Kalliope Luna Welch

Teacher:      Cindy Welch

Mentor:      Paul Welch

# Innovative Data Science Award

**John Engen**

**New Mexico  
Consortium**

**CEO**



# Innovative Data Science Award

**Team:** Justice Code AI

Implementing AI for Bioinformatics and Rapid Analysis of Cancer, CKD, and Heavy Metals in NHANES Datasets by Novice Programmers

**Team Members:** Aileen Ukwuoma

**Sponsor:** Rebecca Campbell

**Mentors:** Robert Taylor, Ph.D, Justice Baca MD, Ph.D



# STEAM Award



# STEAM Award

**TEAM:** Welch Homeschool

Virtually Reconstructing and Ancient Musical Instrument

**TEAM MEMBERS:** Helena Welch

**SPONSOR:** Cindy Welch

**MENTOR:** Paul Welch



**Presented by Tom Bowles      Board Member**



# **Professional Presentation Award**

**Matthew Curry**

**Former Board President**

**Sandia National Labs**



# Most Professional Presentation

**TEAM:** Justice Code

A Computational Exploration of COPD Medication Adherence

**TEAM MEMBERS:** Samuel Campen, Alexandrina Ukwuoma, Aileen Ukwuoma

**SPONSOR:** Rebecca Campbell





# Technical Writing Award



# Technical Writing Award

**Team:** Justice Code AI

Implementing AI for Bioinformatics and Rapid Analysis of Cancer, CKD, and Heavy Metals in NHANES Datasets by Novice Programmers

**Team Members:** Aileen Ukwuoma

**Sponsor:** Rebecca Campbell

**Mentors:** Robert Taylor, Ph.D, Justice Baca MD, Ph.D

# Get out your badge number for a random prize drawing for finishing this marathon!



The Winner Is .....

**Sponsored by NM Technology in Education, CHECS**



# High Performance Computing



# High Performance Computing

**Team:** La Cueva High School

AI Calling BS

**Team Member:** Victoria Outkin

**Sponsor:** Jeremy Jensen

**Presented by Ron Davis**



# Human Computer Interaction

Sponsored by

**Stephen Guerin, SimTable**



# Human Computer Interaction

TEAM: V. Sue Cleveland High School

MOCHA

**TEAM MEMBERS:** Clark Kardian, Andrew Boggan

**SPONSOR:** Ashli Knoell

Presented by Stephen Guerin



# Head Judges

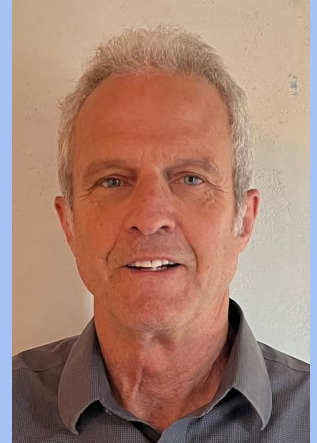
Michael Trahan



Nick Bennett



Richard Barrett





# Recognition of Expo Judges

Hats off to our 33 Expo and Finalist Judges from Challenge Alums, Grad Students, National Labs, Nonprofits, Small and Large Businesses.

Please stand up and take a bow.



# Recognition of Expo Judges

Edward Angel

Charlene Arias

Genevieve Barrett

Richard Barrett

Nicole Baty

Nick Bennett

Thomas Bowles

Vicente Bravo-Valencia

Alan Daugherty

Rusty Davis

Phil Jones

Carene Larmat

Scott Levy

Monique Morin

Joseph Olonia

James Overfelt

Mark Petersen

Paige Prescot

Lonnie Rednour

Timothy Thomas

Geoff Valdez

Blaine Vigil

Anneliese Ward

Rachel Washington



# Finalist Judges

Matthew Curry - Sandia Labs

Mike Davis - Hewlett Packard Enterprise

Sharon DeLand - Retired Sandia Labs

Michelle Fairow - UNM

Stephen Guerin - Simtable

David Janecky - Retired LANL

Maureen Psaila-Dombrowski - LANL

Michael Trahan - Head Judge from Sandia Labs



# Community Impact Award



# Community Impact Award

**TEAM:** V. Sue Cleveland High School

MOCHA

**TEAM MEMBERS:** Clark Kardian, Andrew Boggan

**SPONSOR:** Ashli Knoell

**Presented by Stephen Guerin**



# Community Impact Award



**TEAM:** Capital High School

Robotic Gunshot Detection System - SCOOBY

**TEAM MEMBERS:** Raul Alvarado Villalobos, Craig Andree, Abajo, Jesse Burch, Haize Christiansen, Jordan Lam, Britny Marquez, Edward Scott

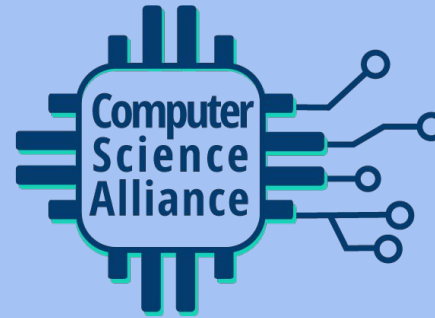
**SPONSOR:** Barbara Teterycz

**MENTOR:** David Ritter

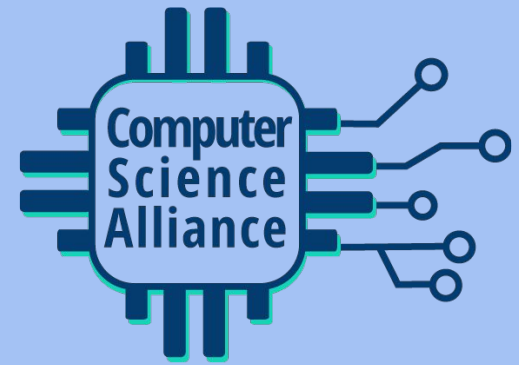
**Presented by Stephen Guerin**



# Middle School Award



# Middle School Award



**TEAM:** St. Thomas Aquinas School

The Impact of Sharks Disappearing in the Great Barrier Reef

**TEAM MEMBER:** Victoria Reichow

**SPONSOR:** Eric Vigil

**Presented by Karen Glennon**





# Teacher Appreciation Awards



**I touch the future, I teach.**

Christa McAuliffe





# Teacher Appreciation Award

**For the third year in a row,  
students have nominated**

**Barbara Teterycz from Capital High, Santa Fe!**

Come on up here,

Mrs. T, Haize, Edward and Jordan.

Listen to some of their [comments](#).





# Teacher Appreciation Award

**Sarah Rowe - New Mexico School for the Arts**

**Sarah, Elisea Jackson and Gloria Galassi please come up here!**

**These are the comments the NMSA team sent in!**

# **VOLUNTEER OF THE YEAR**

## **Richard Barrett**

Richard stepped up for teams in need of assistance when he was asked.

He talked with them over zoom at hours they were available and visited their school to offer his help.

One of this year's Head Judges.

Thank you, Richard!



**Longevity Award**

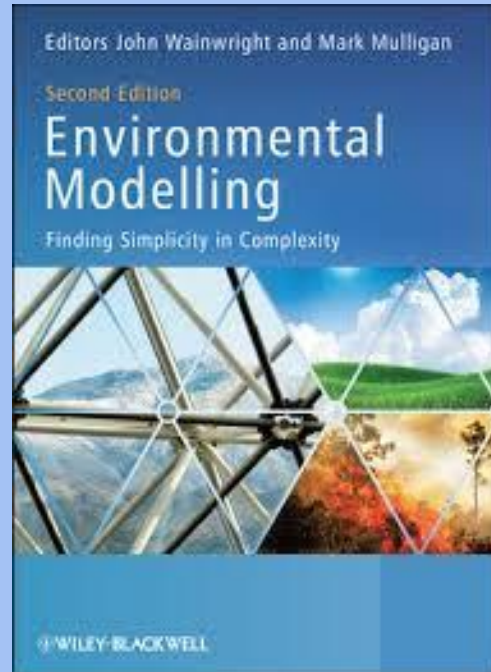
**Congratulations to**

**Andrew Morgan**

**for being in the Supercomputing Challenge**

**for 6 years!**

# Environmental Modeling Award



# Environmental Modeling Award

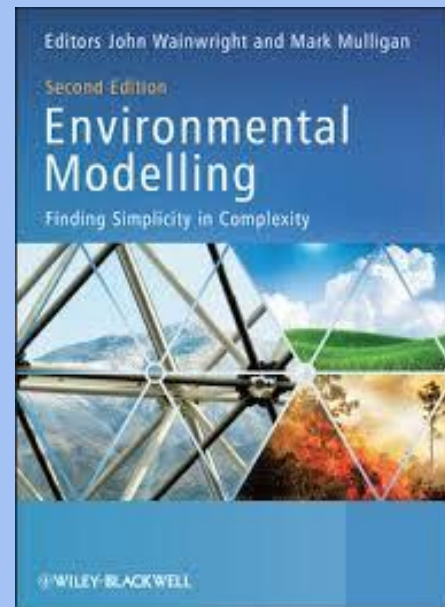
**TEAM:** Santa Fe Prep

System Approach to Artificial Light at Night (ALAN)

**TEAM MEMBERS:** Camila Carreon

**SPONSOR:** Jocelyn Comstock, Gabriella Masoni

**Presented by David Janacky, LANL retired**



# Climate Award





# Climate Award

**Team:** Albuquerque Academy

Single-Family Residential Thermal Energy Storage

**Team Members:** Nicholas Allan

**Sponsor:** Jay Garcia

# Teamwork Award

**Eric Chavez, Field Representative**

**Representing U.S. Senator Ben Ray Luján**



# Teamwork Award

**TEAM:** Tucumcari High School

Color Detection

**TEAM MEMBERS:** Sariah Mardo, Rachel Mardo

**SPONSOR:** Thomas Evans



# Research Award



**Sponsored by NM Technology in Education, CHECS**



# Research Award

**TEAM:** Monte del Sol Charter School

SCRAM

**TEAM MEMBERS:** Gabriella Armijo, Adelina Baca, Emlee Taylor-Bowlin

**SPONSOR:** Rhonda Crespo



**Presented by Alan Daugherty Melrose District**



# Computational Science Award



# Computational Science Award

**Team:** Welch Homeschool

Virtually Reconstruction an Ancient Musical Instrument

**Team Member:** Helena Welch

**Sponsor:** Cindy Welch

**Mentor:** Paul Welch

# Creativity and Innovation Award





# Creativity and Innovation Award

**TEAM:** Academy for Technology and the Classics

Using Cluster Random Samples to Find Spurious Correlations in Neural Networks

**TEAM MEMBERS:** Henry Tischler

**SPONSOR:** Jennifer Hooten

**Presented by Annaliese Ward, University of New Mexico**



# NUMBERS PLEASE!



# LOGO for Next Year! 2024-2025

**Presented by Nick Bennett CNM**

And the Logo is

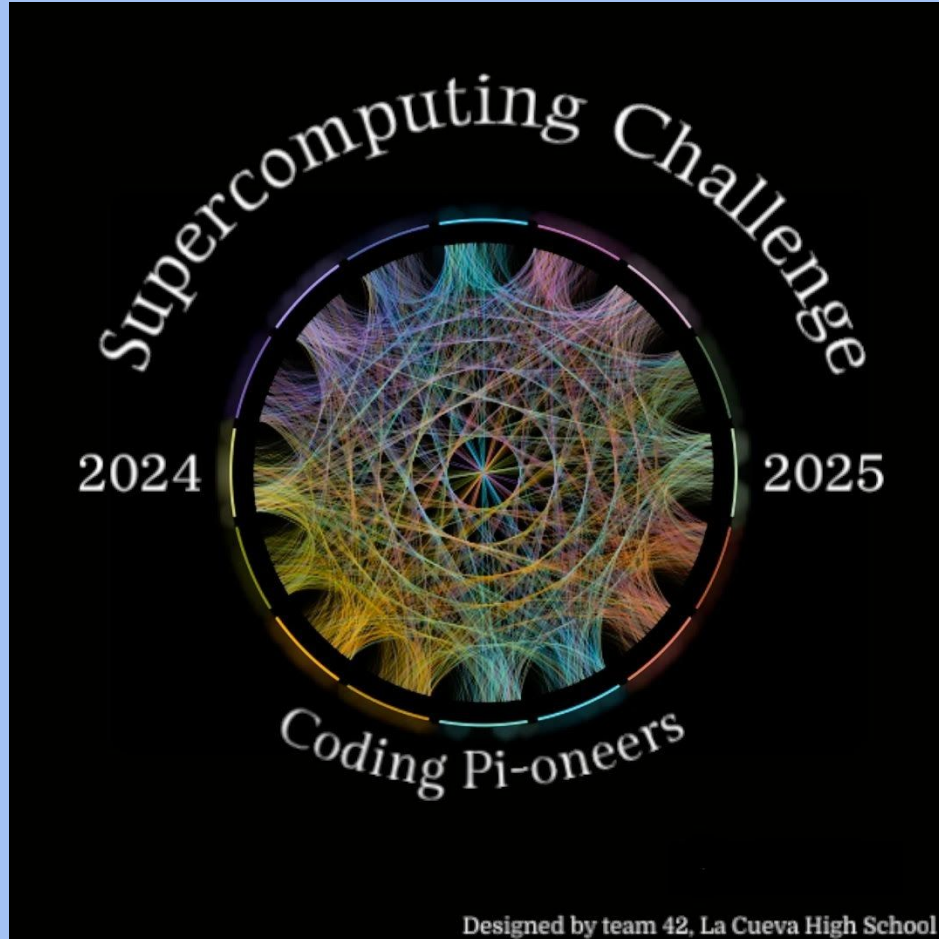
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# LOGO for Year 2024-2025



Designed by team 42, La Cueva High School

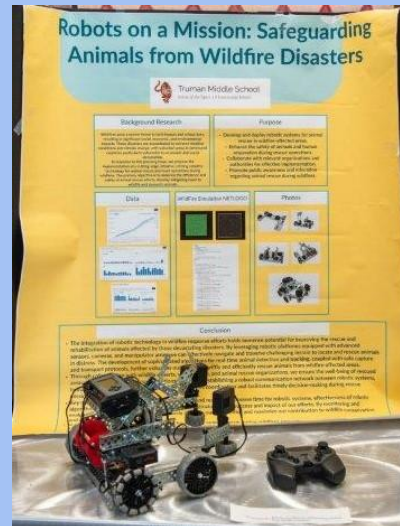
# Technical Poster Award

**TEAM:** Truman Middle School

Robots on a Mission: Safeguarding Animals from Wildfire Disasters

**TEAM MEMBERS:** Vincent Nuanes, Josue Ochoa, Ayla Alaya

**SPONSOR:** Natali Bareto Baca



# Crowd Favorite

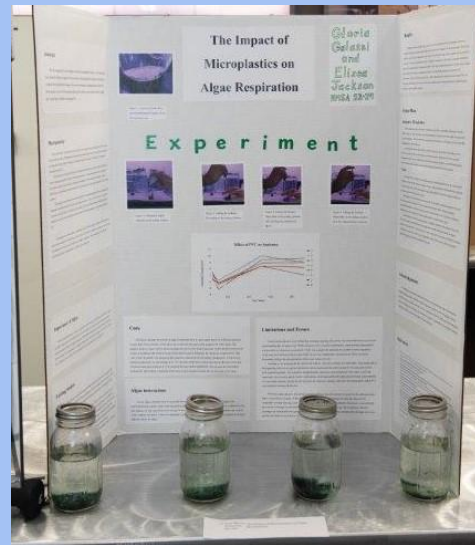


# Crowd Favorite Award

**TEAM:** #27 New Mexico School for the Arts  
The Impact of Microplastics on Algae  
(Respiration)

**TEAM MEMBERS:** Gloria Galassi, Elisea Jackson

**SPONSOR:** Sarah Rowe



**Presented by Char Arias, Retired Sandia Labs & Board member**



# New Mexico Network for Women in Science and Engineering





# New Mexico Network for Women in Science and Engineering

**TEAM:** New Mexico School for the Arts

The Impact of Microplastics on Algae (Respiration)

**TEAM MEMBERS:** Gloria Galassi, Elisea Jackson

**SPONSOR:** Sarah Rowe



**Presented by Cheri Burch**



# Magellan Award

## An Explorer and a Risk Taker

Sponsored by Daniel and Mel Fuka, Challenge Advocates



# Magellan Award

**TEAM:** Harrison Middle School

Farming the Unfarmable

**TEAM MEMBERS:** Leland Martinez, Anthony Tapia,  
Anthony Amaya

**SPONSOR:** Becky Campbell

**MENTOR:** Michelle Fairow



# Judges' Special Awards



# Expo Judges' Special Award

## User Interface Award

TEAM: Los Alamos Middle School

Duonumero: Multilingualism in Math

TEAM MEMBERS: Linus Plohr



# Expo Judges' Special Award

## Growing New Mexico Roots

**TEAM:** New Mexico Academy for the Media Arts  
The Wood-Wide Web's Impact on Plant Health in Arid Areas

**TEAM MEMBERS:** Eduardo Dorado, Ana Sofia Rodriguez, Elijah Nasser-Sparks, Wyatt Wade

**SPONSOR:** Tanya Mueller



# Expo Judges' Special Award

## Perservance

**TEAM:** McKinley Middle School

Mushrooms as Reducers of Trash

**TEAM MEMBERS:** Lennon Martinez, Elias Villa, Alexandra Braden

**SPONSOR:** Sharee Lunsford

**MENTORS:** Karen Glennon, Patty Meyer



# Finalists' Judges Special Award

## Computational Engineering

**TEAM:** Capital High School

Robotic Gunshot Detection System - SCOOBY

**TEAM MEMBERS:** Raul Alvarado Villalobos, Craig Andree, Abajo, Jesse Burch, Haize Christiansen, Jordan Lam, Britny Marquez, Edward Scott

**SPONSOR:** Barbara Teterycz

**MENTOR:** David Ritter





# Finalists' Judges Special Award

## Future On Fire

**Team:** V. Sue Cleveland High School

A Realtime Camera Fusion 3D Model with a Novel Feature-Matching and Star Identification-Based Calibration for Tracking Smoke Plumes

**Team Member:** Gene Huntley

**Sponsors:** Ashli Knoell, Leah Felty

**Mentor:** Stephen Guerin

# Finalists' Judges Special Award

## Standing on the Shoulders of Giants

**Team:** La Cueva High School

CARE: Cancer and Radiation Education

**Team Members:** Hadwyn Link, Ximena Serna, Iorwen Ouyang, Isaac Chen

**Sponsor:** Jeremy Jensen

**Mentor:** Mario Serna

# Finalists' Judges Special Award

**Excellence in Complexity Analytics “Let there be darkness”**

**Team:** Santa Fe Preparatory School

A Systems Approach to Understanding Artificial Night at Light

**Team Members:** Camila Carreon

**Sponsor:** Jocelyn Comstock, Gabriella Masoni

**Mentor:** Mark Galassi

# **Finalists' Judges Special Award**

## **Excellence in Computational Astronomy**

**Team:** Welch Homeschool

Detecting Exoplanets Through Transits

**Team Member:** Kalliope Luna Welch

**Sponsor:** Cindy Welch

**Mentor:** Paul Welch

# Sponsor Recognition

Kudos for our sponsors!!

**The people in these businesses  
and companies helped us  
reach the Finish Line!!**



# Primary Partners

- Los Alamos National Laboratory
- Triad National Security, LLC

# Gold Partners

- New Mexico Consortium
- Sandia National Laboratories



# Silver Partners

- Gulfstream Group and bigbyte.cc
- Microsoft
- N3B
- PNM
- Westwind

# Bronze Partners

- Holmans
- New Mexico Technology In Education (NMTIE)
- Simtable/Redfish Group



# Educational Partners

- The Center for Connected Learning (CCL) and Computer-Based Modeling/NetLogo
- CNM Ingenuity, Inc
- Eastern New Mexico University
- New Mexico Highlands University





# Educational Partners Continued

- New Mexico Tech
- New Mexico State University
- Northern New Mexico College
- San Juan College
- Santa Fe Community College
- University of New Mexico UNM CARC
- UNM CARC, Center for Advanced Research Computing



# Friends of the Challenge

- Hugo Rivera Calzadillas
- Computer Science Alliance, Paige Prescott
- Dr. Shaun Cooper, NMSU
- Creighton Edington
- Daniel and Mel Fuka
- Clint Hubbard
- David Janecky



# Friends of the Challenge (continued)

- Irene Lee/Roger Critchlow
- Maximo Lazo
- NM Network for Women in Science and Engineering
- Jen Phifer
- Micah Sulich
- Windspirit Therapeutic Massage



# You, too, can be a Challenge Sponsor!!



**Support the Supercomputing Challenge when you shop!**

Visit <http://www.smithsfoodanddrug.com/inspire>. Search for Supercomputing Challenge either by name or MY603 and then click Enroll.

New users need to create an account requiring some basic information, a valid email address and a *rewards* card.



# Scholarship Recipients



Scholarship Committee  
**Hope Cahill, Creighton Edington,**  
and **Dana Roberson**



# Scholarship Recipients

**Presented by Patty Meyer**

<u>Name</u>	<u>High School</u>	<u>College</u>
Julia Alameida	Capital HS	NMSU
Gabriella Armijo	Monte Del Sol	NMT
Jordan Lam	Capital HS	Seattle CC
Britny Marquez	Capital HS	NMSU
Guadalupe Rojo	Capital HS	NMSU
Emlee Taylor	Monte Del Sol	Cal State
Henry Tischler	Academy for Technology and the Classics	U of Denver
Aileen Ukwuoma	Early College Academy	UNM



# Scholarship Donors

Dave Ritter and Family

Fred Hamilton



**27 Donations to the Betsy Frederick  
Memorial Scholarship Fund**



**And the moment we  
have ALL been  
waiting for .....**

**Another  
Drum roll,  
please!**





# But First Another...



**For real this time .....**

**Our Third Place Winner is.....**



**Another  
Drum roll,  
please!**

# THIRD PLACE

**TEAM:** Santa Fe Preparatory School

Computational Hydrodynamic Analysis for Speed Maximization (CHASM)

**TEAM MEMBERS:** Luke Rand, Greta Swanson, Nandita Ganesan

**SPONSOR:** Jocelyn Comstock



**CONGRATULATIONS!**



# Our Second Place Winner is.....

**DRUM ROLL .....**



# SECOND PLACE

**TEAM:** Albuquerque Academy

Water Runoff and Diversion Simulation

**TEAM MEMBERS:** Harrison Schiek

**SPONSOR:** Jay Garcia



**GOOD WORK!!**



**The moment we've all been waiting for!**

**Our First Place Winner is.....**



# FIRST PLACE

**TEAM:** Los Alamos High School

Magnetic Reconnection

**TEAM MEMBERS:** Tate D. Plohr

**MENTOR:** Mark Peterson



**WELL DONE!**



# FIRST PLACE WINNERS

Brief overview of their project...

Go for it!





**We'll see you next year!!!  
It will be our 35th year!**

**Congratulations Seniors!**

**We look forward to your coming back to be an alumni supporter!**



