

2015 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Jovan Zhang

Modeling Gas Flow in Hydraulically Fractured Shale

Los Alamos High School, Los Alamos, NM

Second Place: Vladislav Sevostianov

A Farewell to Thermal Expansion

Las Cruces High School, Las Cruces, NM

Third Place: J. T. Goodart

The Cancer Breathalyzer: Chemical Strips that Detect Chemicals in Lung Cancer “Breath Print”

Grants High School, Grants, NM

Junior Division

First Place: Rusty Ludwigsen

Passive Reduction of Involuntary Arm/Hand Tremors

Desert Willow Family School, Albuquerque, NM

Second Place: Sean Collins

Ant Pheromones: Do You Smell What I’m Telling You?

St. Theresa of Avila, Grants, NM

Third Place: Devin Padilla

Wheat: The Good, The Bad, The Ugly

St. Theresa of Avila, Grants, NM

Honorable Mention: Lillian Petersen

Will it be a Good Ski Season: Correlations between El Nino and Snowfall

Los Alamos Middle School, Los Alamos, NM

2015 Rio Grande Chapter AVS Science & Technology Society Winners

The AVS Science & Technology Society, formerly the New Mexico Chapter of the American Vacuum Society, sends judges and selects its own winners in the paper competition and awards prizes to these winners as well as to their teachers/sponsors. The New Mexico Academy of Science is very grateful for their support.

Senior Division

Place	Student	School	Sponsor
First	Abdullah Shah	Salam Academy	Aamna Nayyar
Second	Elise Koskelo	Los Alamos High School	Dr. Jeanne Robinson

Junior Division

Place	Student	School	Sponsor
First	Lillian Petersen	Los Alamos Middle School	Mark Petersen
Second	Rusty Ludwigsen	Stockham Home School	Karen Stockham

2014 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Jeongmin Lee

Gas Phase Ion Chemistry and Ion Mobility of Pharmaceutical Substances in Counterfeit Formulations

Las Cruces High School, Las Cruces, NM

Second Place: Josh Ludwigsen

Football Facemask with Impact Shock Mitigation

Eldorado High School, Albuquerque, NM

Third Place: Lilly Chiou

Characterization of Carrots in Making Fruit/Vegetable Juices: Will Carrots Destroy Ascorbic Acid?

Carlsbad High School, Carlsbad, NM

Junior Division

First Place: Rusty Ludwigsen

Passive Reduction of Involuntary Arm/Hand Tremors

Desert Willow Family School, Albuquerque, NM

Second Place: Ruby Selvage

All Cracked Up: Lip Balm Addiction

Los Alamos Middle School, Los Alamos, NM

Third Place: Hannah Linder

Yuck! Brown Apples

Roosevelt Middle School, Tijeras, NM

Honorable Mention: Devon Padilla

Wheat, the Good, the Bad and the Ugly

Grants Middle School, Grants, NM

Honorable Mention: Logan Byrom

Hoverbility

Hermosa Middle School, Farmington, NM

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Senior Division

Place	Student	School	Sponsor
First	Jeongmin Lee	Las Cruces High	Eiceman Research Group
Second	Josh Ludwigsen	Eldorado High	Jennifer Coughlin

Junior Division

Place	Student	School	Sponsor
First	Logan Byrom	Hermosa Middle School	Cindy Colomb
Second	Devin Padilla	Grants Middle School	Maria Mirabal

2013 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Amanda Mercer

Tautochrone Time

Los Alamos High School, Los Alamos, NM

Second Place: Holly Erickson

An Advanced Biomimetic Hand Using Additive Manufacturing

Los Alamos High School, Los Alamos, NM

Third Place: Elias Clark

Modeling the Removal of Hazardous Gases Using Lattice-Boltzmann Methods II

Cibola High School, Albuquerque, NM

Honorable Mention: Vladislav Sevostianov

Self-diagnosing Smart Bolts to Save Your Life

Las Cruces High School, Las Cruces, NM

Junior Division

First Place: Paul Rosenberg

Harvesting Power from Computer Waste Heat

Albuquerque School of Excellence, Albuquerque, NM

Second Place: Rusty Ludwigsen

A Reliable Solar Heated Pet House

Desert Willow Family School, Albuquerque, NM

Third Place: Ruby Selvage

Gallium Reacts to the Fuel Crisis

Los Alamos Middle School, Los Alamos, NM

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Senior Division

Place	Student	School	Sponsor
First	Andrew Miller	Miller Home School	Kenneth Miller
Second	Amanda Mercer	Los Alamos High School	David Mercer

Junior Division

Place	Student	School	Sponsor
First	Carmen Resnick	Taos Charter School	Susan Vernon
Second	Ruby Selvage	Los Alamos Middle School	Eva Abeyta

2012 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Nikita Bogdanov

Characterizing the Effects of Astroid Belt Perturbations on the Orbits of the Inner Planets
Albuquerque Academy, Albuquerque, NM

Second Place: Serina Lee Pack

What Will Grow: Native Grass Research to Assist in Mining Reclamation
Cliff High School, Cliff, NM

Third Place: Elias Clark

Modeling the Removal of Hazardous Gases From Buildings Using Lattice-Boltzmann Methods
Cibola High School, Albuquerque, NM

Junior Division

First Place: Lydia Raymond

How Vocal Fold Properties Influence Voice Pitch
Raymond Home School, Edgewood, NM

Second Place: Megan Risner

Can Human Interaction Affect the Performance of Shelter Dogs on Mental and Behavioral Tests
Heights Middle School, Farmington, NM

Honorable Mention: Edward Park

Solar Energy Conversion
Sierra Middle School, Las Cruces, NM

Honorable Mention: EliseAnne Koskelo

Does Architecture Tamper with Temperature?
Los Alamos Middle School, Los Alamos, NM

Honorable Mention: Ruby Selvage

Rosemary Recall
Pinon Middle School, Los Alamos, NM

2012 Rio Grande Chapter AVS Science & Technology Society Winners

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Senior Division

Place	Student	School	Sponsor
First	Nikita Bogdanov	Albuquerque Academy	Jim Mims
Second	Serina Lee Pack	Cliff High School	Mrs. Skaggs

Junior Division

Place	Student	School	Sponsor
First	Megan Risner	Heights Middle School	Kellee Brandenburg
Second	Ruby Ann Selvage	Pinon Elementary School	Ryan Ross

2011 State NMJAS Paper Competition Winners

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Senior Division

First Place: Fiona McCrossin

Innovation and Imitation: learning processes used by a juvenile siamang
Las Cruces High School, Las Cruces, NM

Second Place: Jordan Grainger

Fighting Bac!! Phase IV
Rio Rancho High School, Rio Rancho, NM

Third Place: Elias Clark

The Effect of Elemental Abundances on Stellar Evolution
Cibola High School, Albuquerque, NM

Honorable Mention: Laura Lane

Monitoring the Disturbance of Soil Microsystems in Dormant Topsoil
Aztec High School, Aztec, NM

Junior Division

First Place: Jessie Linder

Are You Stronger than an Icosahedron
Roosevelt Middle School School, Tijeras, NM

Second Place: Vlad Sevostianov

Changes in Bone Strength Due to Decalcination
Sierra Middle School, Las Cruces, NM

Third Place: Megan Risner

Can You Teach an Old Dog New Tricks?
Heights Middle School, Farmington, NM

Honorable Mention: Chloe Keilers

Factors Affecting Aerodynamic Drag on a Sphere
Los Alamos Middle School, Los Alamos, NM

Honorable Mention: Jon Goodart

Which Sunscreen Has Supier UV Protection?
Los Alamos Middle School, Grants, NM

2011 Rio Grande Chapter AVS Science & Technology Society Winners

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Senior Division

Place	Student	School	Sponsor
First	Hellen Chiou	Carlsbad High School	Deborah Haggerton
Second	Jordan Grainger	Rio Rancho High School	Bob Keeney

Junior Division

Place	Student	School	Sponsor
First	Jon T. Goodart	Los Alamitos Middle School	Dan Cunningham
Second	Jessie Linder	Roosevelt Middle School	Janine Sears

2010 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Laura Lane

Formulating Trends of Nematode Distribution

Aztec High School, Aztec, NM

Second Place: Paulina Majewska

Wetting of Materials Surface

Los Alamos High School, Los Alamos, NM

Third Place: Hellen Chiou

The Effect of Sunlight on Preservation of Vitamin B₂

Carlsbad High School, Carlsbad, NM

Honorable Mention: Natasha Hite

Bioremediation off Landfill Leachate Water Using Populars and Cattails in Wetlands

Grants High School, Grants, NM

Junior Division

First Place: Jeongmin Lee

Rotation of Light

Sierra Middle School, Las Cruces, NM

Second Place: Daniel Ahrens

Does a Change in Light Cycle Bug Insects?

Los Alamos Middle School, Los Alamos, NM

Third Place: Ryan Howard

Water Rockets

St. Mary's Middle School, Albuquerque, NM

Honorable Mention: Vladislav Sevostianov

The Electrical Conductivity of Bones

Sierra Middle School

Las Cruces, NM

2010 Rio Grande Chapter AVS Science & Technology Society Winners

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Senior Division

Place	Student	School	Sponsor
First	Laura B. Lane	Aztec High School	Michael Lane
Second	Natasha Hite	Grants High School	Shelby Alexander

Junior Division

Place	Student	School	Sponsor
First	Ryan Howard	St. Mary's Middle School	Carol Johansen
Second	Jeongmin Lee	Sierra Middle School	Melly Locke

2009 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Ryan Erickson

Shake, Rattle and Roll: A Three Axis Sensor Based on Diamagnetics

Los Alamos High School, Los Alamos, NM

Second Place: Adam Akkad

Display of Specific and Random Peptides on virus-like Particles of MS2 Bacteriophage for Material Science and Biomedical Applications

Albuquerque Academy, Albuquerque, NM

Third Place: James Clark

Utilizing Small Diameter Wells with Pump Technology

Mayfield High School, Los Cruces, NM

Junior Division

First Place: Holly Erickson

Case in Pointe

Los Alamos Middle School, Los Alamos, NM

Second Place: Christian Fitzgerald

Just Wing It

Fitzgerald Homeschool, Albuquerque, NM

Third Place: Taylor Roach

Multitasking Madness: The effect of multitasking on productivity and performance

Annunciation Middle School, Albuquerque, NM

Honorable Mention: Philip Lane

Weather or Not: Myth Busting

Koogler Middle School, Aztec, NM

2009 Rio Grande Chapter AVS Science & Technology Society Winners

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Senior Division

Place	Student	School	Sponsor
First	Adam Akkad	Albuquerque Academy	Kevin Fowler
Second	James Clark	Mayfield High School	John Clark

Junior Division

Place	Student	School	Sponsor
First	Taylor Roach	Annunciation Middle School	Mrs. Ruiz
Second	Philip Lane	Koogler Middle School	Michael Lane

2008 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Megan D. Johnson

How We Think, Who We Are: How We Learn

Rio Rancho High School, Rio Rancho, NM

Second Place: Rebecca Alexander

The Journey to Identify Antibiotic Compounds in New Mexico Lichens

Grants High School, Grants, NM

Third Place: Terryl Bell

Sulfur Spring: An Analysis of Microbiol Life and the Effects of Water Chemistry and Microenvironment in a Karst Spring

Carlsbad High School, Carlsbad, NM

Junior Division

First Place: Phillip Lane

Ants Harvest Crackers

Kroogler Middle School, Aztec, NM

Second Place: Christian Fitzgerald

Diamagnetism in Fruits

Fitzgerald Homeschool, Albuquerque, NM

Honorable Mention: Daniel Ahrens

Space Weathering to Blame for Earth Weathering

Aspen Elementary School, Los Alamos, NM

Honorable Mention

Fiona McCrossin

Reactions in Guinea Pigs Correlating to Sounds

Sierra Middle School, Las Cruces, NM

2008 Rio Grande Chapter AVS Science & Technology Society Winners

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Senior Division

Place	Student	School	Sponsor
First	Megan Johnson	Rio Rancho High School	Rob Leeney
Second	Rebecca Alexander	Grants High School	Mary Savacheck

Junior Division

Place	Student	School	Sponsor
First	Gabriel Joachim	Taylor Middle School	Dr. Lorna Joachim
Second	Christian Fitzgerald	Fitzgerald Homeschool	Alisha Fitzgerald

2007 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Shandiin Copeland

Stream Channel Dynamics in Largo Canyon, 1882-2005, Northwest New Mexico
Kirkland Central High School, Kirkland, NM

Second Place: Keely Goodgame

An Economical, Portable, Pocket-Sized Arsenic Filtering device
San Jon High School, San Jon, NM

Third Place: Susannah L. Clary

The Determination of Gender in Pacific and Atlantic Salmon for Improved Management of Threatened and Endangered Stocks
Los Lunas High School, Los Lunas, NM

Junior Division

First Place: Devin Roach

Damage Control-Use of Computer Imaging to Improve Health Monitoring
Our Lady of the Annunciation School, Albuquerque, NM

Second Place: Joeshibin Victor Joseph

Various Fire Retardants vs Fabric Material
St Bonaventure Middle School, Thoreau, NM

Third Place: Gabriel Joachim

A Comparison of Two Different Dendrobates Species in La Suerte, Costa Rica
Taylor Middle School, Corrales, NM

2007 Rio Grande Chapter AVS Science & Technology Society Winners

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Senior Division

Place	Student	School	Sponsor
First	Shandiin Copeland	Kirkland Central High School	Cassandra Siegersma
Second	Kateri Bowe	San Jon High School	Steve Goodgame

Junior Division

Place	Student	School	Sponsor
First	Devin Roach	Our Lady of the Annunciation School	Debra Allen
Second	Ashlyn Myers	San Jon Middle School	Creighton Edington

2006 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Sandia-Lockheed Martin.

Senior Division

First Place: Anna Trugman

Environmental Engineering of Pogonomyrex Harvester Ant Mounds

Los Alamos High School, Los Alamos, NM

Second Place: Samantha Stutz

Post-Fire Hydrology

Los Alamos High School, Los Alamos, NM

Third Place: Bennet Grill

Limitations of Cottrell's Equation: Plotting Electrochemical Coefficients of Potassium Ferricyanide and Potassium Ferrocyanide as Functions of Temperature and Concentration

Rio Rancho High School, Rio Rancho, NM

Junior Division

First Place: Emily TenCate

Achoo! Modeling the Spread of the Flu

Los Alamos Middle School, Los Alamos, NM

Second Place: Ryan Erickson

Voracious Vortices

Los Alamos Middle School, Los Alamos, NM

Third Place: Laura Lane

Grey Water Backwash: Filtering Household Waste Water for Everyday Use

Koogler Middle School, Aztec, NM

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Senior Division

Place	Student	School	Sponsor
First	Kendra Valdez	Grants High School	Shelby Alexander
Second	Isaac Ketcham	Farmington High School	Donna Schmidt

Junior Division

Place	Student	School	Sponsor
First	Ryan Erickson	Los Alamos Middle School	Barbara Jo Mullis
Second	Alex Caldwell	Our Lady of Fatima	Kathy Arnold

2005 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Intel Foundation.

Senior Division

First Place: Keely Goodgame

The Effect of 670 nm LED Photobiomodulation on the Growth of Mitochondrial Mutant Saccharomyces Cerevisiae

San Jon High School, San Jon, NM

Second Place: Robert Cordwell

Some Results of Inclusive and Exclusive Partitions of Complete Graphs

Manzano High School, Albuquerque, NM

Third Place: Kevin Claytor

Acoustic and Ultrasonic Resonances Induced by Laser Irradiation

Los Alamos School, Los Alamos, NM

Honorable Mention: Ahmad Manshad

Braille Accessible Learning System

Las Cruces High School, Las Cruces, NM

Junior Division

First Place: Emily TenCate

SIM Desert-Coyotes and Rabbits: The Predator Prey Problem

Pinon Elementary School, Los Alamos, NM

Second Place: Marietta Young

Mother Earth's Brew: Ethanol as an Alternate Fuel

Hermosa Middle School, Farmington, NM

Third Place: Ashley Phillips

Itsy Bitsy Spider

Hermosa Middle School, Farmington, NM

Honorable Mention: Nathaniel Pfeifer

Simple Solar Spectrometer

Pfeifer Home School, Los Lunas, NM

2005 Rio Grande Chapter AVS Science & Technology Society Winners

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Senior Division

Place	Student	School	Sponsor
First	Ahmad Manshad	Las Cruces High School	Muhanad Manshad
Second	Kevin Claytor	Los Alamos High School	Thomas Claytor

Junior Division

Place	Student	School	Sponsor
First	Emily TenCate	Pinon Elementary School	Deborah Summa
Second	Nathaniel Pfeifer	Pfeifer Home School	Kent Pfeifer

Senior Division Competitors



Junior Division Competitors



Photos by Jerry Nelson, AVS Science & Technology Society

2004 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from Intel Foundation.

Senior Division

First Place: Mahlet Woldemariam

Utilizing Bacterial Carpets for Bionanotechnology Applications

Deming High School, Deming, NM

Second Place: Brian Geistwhite

Turning the Red Planet into the Green Planet: Modeling the Martian Greenhouse Effect

Farmington High School, Farmington, NM

Third Place: Keely Goodgame

*The Enhanced Regeneration of *Dugesia Tigrina* Utilizing 670 nm LED Photobiomodulation*

Deming High School, Deming, NM

Honorable Mention: Daniel C. Appel

Electroenzymatic Biofuel Cells II

Eldorado High School, Albuquerque, NM

Honorable Mention: Anna Trugman

A Nonlinear Bug's Life

Los Alamos High School, Los Alamos, NM

Junior Division

First Place: Vivienne Clark

Determining the Effect of a Trumpet's Curvature on its Timbre

Clark Homeschool, Albuquerque, NM

Second Place: Shandiin Copeland

Cool Clear Water

Kirkland Middle School, Kirkland, NM

Third Place: Kevin Lane

Biogas Production from Bovine Excrement

Koogler Middle School, Flora Vista, NM

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Senior Division

Place	Student	School	Sponsor
First	Daniel Appel	Eldorado High School	Plamen Atannasov
Second	Keely Goodgame	Deming High School	Steve Goodgame

Junior Division

Place	Student	School	Sponsor
First	Vivienne Clark	Clark Homeschool	Shang-Ying Clark
Second	Morris Huang	Sarracino Middle School	Ms. Gerry Klinglesmith

Senior Division Competitors



Junior Division Competitors



Photos by Jerry Nelson, AVS Science & Technology Society

2003 State NMJAS Paper Competition Winners

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Senior Division

First Place: Nigel Reuel

A Study on Practical Production of Hydrogen Through Efficient Electrolysis
Rio Rancho High School, Rio Rancho, NM

Second Place: Daniel Appel

Biocatalytic Composite Electrodes for Biofuel Cell Application
Eldorado High School, Albuquerque, NM

Third Place: Ethan Kottke

Bio-Power!!! Can Biological Nerve Action Potentials Stimulate Artificial Muscle, Platinum IPMCS?
Farmington High School, Farmington, NM

Honorable Mention: Brianne Douthit

The Determination of the Orbit of Asteroid 15 Eunomia Using the La Placian Method
Farmington High School, Farmington, NM

Junior Division

First Place: Amberle Durano

Sit Still and Listen: A Study in Right-Brain Stimulation for Elementary-Aged Children
Durano Homeschool, Albuquerque, NM

Second Place: Christopher DeBlassie

Superabsorber To The Rescue
St Mary's Mid School, Albuquerque, NM

Third Place: David Green

Some Like It Hot
Hermosa Middle School, Farmington, NM

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Senior Division

Place	Student	School	Sponsor
First	Travis Diaz	Grants High School	Shelby Alexander
Second	Tristan Williams	Mayfield High School	Jean M. Williams

Junior Division

Place	Student	School	Sponsor
First	Keely Goodgame	Hofacket Mid High School	Steve Goodgame
Second	David Green	Hermosa Middle School	Cindy Colomb

Junior Division Competitors



Photo by Jerry Nelson, AVS Science & Technology Society