

## 2021 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from **Sandia National Labs**

### **Senior Division**

**First Place: Aditiya Koushik**

*Designing a Monte Carlo Python Computer Program to Model Random Mutations Across T-cell resistant Sequences and Hotspots in the SARS-CoV-2 Spike Glycoprotein*

La Cueva High School, Albuquerque

**Second Place: Karin Ebey**

*Climate Change on Crocodilians: Modeling the Effects of Phenological Shifts*

Los Alamos High School, Los Alamos

**Third Place: McKenna Collins**

*Use of Hemispheric Sensing with Trajectory Prediction for Satellites to Mechanically Dodge Small Space Debris*

AIMS High School, Albuquerque

**Fourth Place: Gabriel Gurule**

*Solving the Issue of Inefficiency for a Multiple Faceted Variable Energy System*

AIMS High School, Albuquerque

## 2020 State NMJAS Paper Competition Winners

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### **Senior Division**

**First Place: Karin Ebey**

*Climate Change on Crocodilians: Modeling the Effects of Variations in Rainfall on Crocodilians and Their Ecosystem*

Los Alamos High School, Los Alamos

**Second Place: Ryan Helmer**

*Engineering a Desiccant-Driven Self-Contained Solar Distillation System to Collect Drinking Water from the Atmosphere*

Jefferson Montessori Academy, Carlsbad

**Third Place: Milidu Jayaweera**

*Mission-Critical Communications Planning over Contested RF Spectrum with Deep Reinforcement Learning Aided Artificial Intelligence*

La Cueva High School, Albuquerque

**Honorable Mention: Lillian Petersen and Max Corliss**

*Activity-By-Contact Model to Predict Enhancer-Gene Connections: A Tool to Increase Our Understanding of Cancer*

Los Alamos High School, Los Alamos

**Junior Division**

**First Place: Alexia Munson**

*Which Probiotic is Best for You*

Los Alamos Middle School, Grants

**Second Place: William Borovina**

*Treelines in the Valles Caldera*

Los Alamos Middle School, Los Alamos

**Third Place: Aditya Kiran Koushik**

*Testing the Properties of Lasers in the Double Slit Experiment*

Albuquerque Institute for Mathematics and Science, Albuquerque

## 2019 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from **Sandia National Labs**

**Senior Division**

**First Place: Russell Ludwigsen**

*Increasing Metabolic Substrates to Improve Spreading Depolarization Recovery*

Early College Academy, Albuquerque

**Second Place: Lillian Petersen & Garyk Brix**

*A Novel Computational Tool to Inform Cost-Effective Nutrition Interventions in Sub-Saharan Africa*

Los Alamos High School, Los Alamos

**Third Place: Britney Hsu**

*Amyloid Vector: Plant-Based Reduction of Amyloid Plaque Formation to Reduce Amyloidosis*

Taos Academy Charter School, Taos, NM

**Honorable Mention: Milidu Jayaweera**

*Title: A Game of Jamming: A Multi-Agent Game Theoretic Based Cognitive Communication System to Combat an AI Jammer*

La Cueva High School, Farmington Albuquerque, NM

## **Junior Division**

### **First Place: David Reichhardt**

*Robustness on LEGO Bridges*

Mountain Elementary, Los Alamos, NM

### **Second Place: Sofia Chavez**

*The Rubber Hand Illusion and Neuroplasticity*

Jefferson Middle School, Albuquerque, NM

### **Third Place: Ksenia Servostinov**

Title: *Albumin for Drug Delivery: the good, the bad and the ugly.*

Sierra Middle School, Las Cruces, NM

### **Honorable Mention: Chloe Rychener**

Title: *The Geometry of making a goal*

St. Teresa of Avila Catholic School, Grants, NM

## 2019 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	McKayla Gilbert	Farmington High School	Robert Watson
Second	Milidu Jayaweera	La Cueva High School	Lena Eddings

### Junior Division

Place	Student	School	Sponsor
First	Sofia Chavez	Jefferson Middle School	Sherie Pennebaker
Second	Michael Bane	Aspen Elementary	Heather Coy

# 2018 State NMJAS Paper Competition Winners

Cash awards were provided by a grant from **Sandia National Labs**

## **Senior Division**

### **First Place: Lillian Petersen**

*Predicting Food Shortages in Africa From Satellite Images*

Los Alamos High School, Los Alamos, NM

### **Second Place: AnaMaria Perez**

*Analyzing Patterns Within an Original Egyptian Fraction Decomposition Algorithm*

Albuquerque Academy, Albuquerque, NM

### **Third Place: Karin Ebey**

*Modeling American Alligator Population*

Los Alamos High School, Los Alamos, NM

## **Junior Division**

### **First Place: Ksenia Sevostianov**

*Play "Spot The Difference" To Fight Cancer*

Sierra Middle School, Las Cruces, NM

### **Second Place: Milidu Jayaweera**

*Designing a Cognitive Anti-Jamming Communication System with Machine Learning and Reconfig Antennae*

Albuquerque Institute of Math & Science, Albuquerque, NM

### **Third Place: Sofia Chavez**

Title: *An Honest Placebo*

Jefferson Middle School, Albuquerque, NM

### **Honorable Mention: Adam Homsy**

Title: *Using Sentiment Analysis to Assess Depression Amongst the Elderly*

Sierra Middle School, Las Cruces, NM

### **Honorable Mention: Trey Jones**

Title: *Effects of UV Irradiation on Regenerating Planarians*

Hermosa Middle School, Farmington, NM

## 2018 Rio Grande Chapter AVS Science & Technology Society Winners

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### Senior Division

Place	Student	School	Sponsor
First	Lillian Peterson	Los Alamos High School	Mark Petersen
Second	Heather Wheeler	San Juan College High School	James McDowell

### Junior Division

Place	Student	School	Sponsor
First	Sofia Chavez	Jefferson Middle School	Suzan Dunnum
Second	Daniel Borovina	Los Alamos Middle School	Karen Borovina

# 2017 State NMJAS Paper Competition Winners

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

## Senior Division

**First Place: Sanjiv Harikumar**

*Magnetic Iron-Gold Nanoparticles for the Photothermal Dissolution of Protein Aggregates: Implications in Alzheimer Treatment*

Las Cruces High School, Las Cruces, NM

**Second Place: Lillian Petersen**

*America's Farming Future: The Impact of Climate Change on Crop Yields*

Los Alamos High School, Los Alamos, NM

**Third Place: Lea Godret-Miertschin**

*Investigation of Vegetable Oil Unsaturation in Extraction of Quinine from cinchona succirubra*

Sandia High School, Albuquerque, NM

**Honorable Mention: Amaya Coblentz**

*The Photobiology of Lichens Revisited: The Chlorophyll Connection*

Los Alamos Middle School, Los Alamos, NM

## Junior Division

**First Place: Karin Ebey**

*A Comparison of Alligator and Crocodile Proportions*

Los Alamos Middle School, Los Alamos, NM

**Second Place: Ksenia Sevostianov**

*Can Rye Grass Be Grown Without Fresh Water*

Sierra Middle School, Las Cruces, NM

**Third Place: Jaden Hicks**

*Test Measuring for Author Identification*

Carlsbad Intermediate School, Carlsbad, NM

## 2017 Rio Grande Chapter AVS Science & Technology Society Winners

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### Senior Division

Place	Student	School	Sponsor
First	Lea Godret-Miertschin	Sandia High School	Valerie Veroz
Second	Sanjiv Harikumar	Las Cruces High School	James McDowell

### Junior Division

Place	Student	School	Sponsor
First	Karin Ebey	Los Alamos Middle School	Eva Abeyta
Second	Ksenia Sevostianov	Sierra Middle School	Igor Sevostianov



# 2016 State NMJAS Paper Competition Winners

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

## Senior Division

### **First Place: Rusty Ludwigen**

*Passive Reduction of Involuntary Arm/Hand Tremors, Phase III*  
Early College Academy, Albuquerque, NM

### **Second Place: Samantha Multari**

*Can Seaweed Save the Coral? Part II*  
St. Pius X High School, Albuquerque, NM

### **Third Place: Karishma Patel**

*Oil and Bacteria: Slip Sliding Away*  
Grants High School, Grants, NM

### **Honorable Mention: Edward Parks**

*Cheap Solution to Removal of Uranium from Contaminated Groundwater by Functionalized Clay Pellets*  
Las Cruces High School, Las Cruces, NM

## Junior Division

### **First Place: Alex Silverhart**

*Effect of Natural Antibiotic Resistance of E. Coli: K12*  
Albuquerque Institute of Mathematics and Science, Albuquerque, NM

### **Second Place: Amaya Coblantz**

*Drying not Dying, Photobiology of Lichen*  
Los Alamos Middle School, Los Alamos, NM

### **Third Place: Adittyo Paul**

*Generating Electricity Using Micro-turbines from Forward Moving Automobiles*  
Albuquerque Institute for Mathematics and Science, Albuquerque, NM

### **Honorable Mention: Kyla King**

*Inhibiting the Growth of Prionibacteria*  
Heights Middle School, Farmington, NM

## 2016 Rio Grande Chapter AVS Science & Technology Society Winners

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### Senior Division

Place	Student	School	Sponsor
First	Karishma Patel	Grants High School	Shelby Alexander
Second	Rusty Ludwigsen	Early College Academy	Mark Walker

### Junior Division

Place	Student	School	Sponsor
First	Alex Silverhart	ABQ Institute of Math & Science	Linda Fey
Second	Amaya Coblenz	Los Alamos Middle School	Eva Abeyta

## **2015 State NMJAS Paper Competition Winners**

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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

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### 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**

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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

## 2014 Rio Grande Chapter AVS Science & Technology Society Winners

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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**

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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

## 2013 Rio Grande Chapter AVS Science & Technology Society Winners

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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

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

## **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**

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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 B<sub>2</sub>*

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 Schoo;, Las Cruces, NM

## 2008 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	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**

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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

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	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**

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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

## 2006 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	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

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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	Vivenne 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

Cash awards were provided by a grant from Intel Foundation.

## **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

## 2003 Rio Grande Chapter AVS Science & Technology Society Winners

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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