

**29th Annual Blue Ridge Highlands Regional Science Fair
March 6 - 7, 2020 – Radford University**

AWARDS BY SPECIAL AWARDS

AMERICAN ASSOCIATION FOR UNIVERSITY WOMEN

- 303 Haley Hansen
Assessing Compliance of Fourth and Fifth Grade Students with a National Backpack Weight Guideline
Southwest Virginia Governor's School
Sponsor: Heather Lowe
- 306 Lauren Perkins
Efficacy of Charcoal as a Bleaching Agent on Teeth
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

**AMERICAN CHEMICAL SOCIETY
NORTHEASTERN TENNESSEE SECTION**

First Place

- 502 Isabella Burgoyne
Using Cellulose Nanocrystals as a Filter for Methane and Nitrogen Dioxide
Southwest Virginia Governor's School
Sponsor: Jared Brown

Second Place

- 503 Hannah Dishner
The Extraction of Lead from Cathode Ray Tubes Through the Use of Acidic Water Leaching
Southwest Virginia Governor's School
Sponsor: Jared Brown

Third Place

- 507 Kennedy Williams
Turbidity in Water in a Local Wellness Center Pool
Southwest Virginia Governor's School
Sponsor: Jared Brown

**AMERICAN CHEMICAL SOCIETY STUDENT AFFILIATE
RADFORD UNIVERSITY**

Junior Division

First Place

2503 Elias Stout
Did You Hear That? What Materials Work Best for Soundproofing
Graham Middle School
Sponsor: Holly Smith

Second Place

2601 Aynsley Krum
Through Thick and Thin
Classical Conversations
Sponsor: Marisa Krum

Senior Division

First Place

503 Hannah Dishner
The Extraction of Lead from Cathode Ray Tubes Through the Use of Acidic Water Leaching
Southwest Virginia Governor's School
Sponsor: Jared Brown

Second Place

504 Megan Layne
How Do Certain Ingredients Affect the Calorie Count in Cookies?
Southwest Virginia Governor's School
Sponsor: Jared Brown

**AMERICAN CHEMICAL SOCIETY
VIRGINIA BLUE RIDGE SECTION**

501 Allison Adams
Determining Concentrations of Lead in Jewelry Using Inductively Coupled Plasma
Southwest Virginia Governor's School
Sponsor: Jared Brown

AMERICAN METEOROLOGICAL SOCIETY AWARD

- 703 Grace Shen
The Effects of Storm Intensity on the Filtration of Microplastics from Sediment
Blacksburg High School
Sponsor: Katharine Davis
- 1201 Grace Greenwood
Comparison of the Effects of Sodium Chloride on Spinach Growth as a Function of Soil Types Around Southwest Virginia
Southwest Virginia Governor's School
Sponsor: Jared Brown

AMERICAN PSYCHOLOGICAL ASSOCIATION

- 207 Diego Elias
Analysis of Public Perception of Climate Change in the New River Valley Using Contingent Valuation
Blacksburg High School
Sponsor: Katharine Davis

AMERICAN RED CROSS -- NEW RIVER VALLEY SCIENCE IN SERVICE TO OUR COMMUNITIES

- 601 Brandon Fan
An AI-based System for Early Detection of Natural Disaster and Incidents Using Open Data
Blacksburg High School
Sponsor: Katharine Davis

AMERICAN SOCIETY OF MAMMALOGISTS

- 101 Katie Highfield
Quantifying Pre- to Post-Data Involving a Blast Induced Neurotrauma
Blacksburg High School
Sponsor: Katharine Davis
- 103 Christian Shushok
Openness Factor and Large Mammal Use of Highway Underpasses: An Observational Study of State Mitigation Techniques
Blacksburg High School
Sponsor: Katharine Davis

ASM EDUCATION FOUNDATION

- 502 Isabella Burgoyne
Using Cellulose Nanocrystals as a Filter for Methane and Nitrogen Dioxide
Southwest Virginia Governor's School
Sponsor: Jared Brown

ASSOCIATION FOR WOMEN GEOSCIENTISTS

- 703 Grace Shen
The Effects of Storm Intensity on the Filtration of Microplastics from Sediment
Blacksburg High School
Sponsor: Katharine Davis

BIOMEDICAL ENGINEERING AWARD VIRGINIA TECH

- 305 Emi Miyazaki and Lexi Nussbaum
Epigallocatechin Gallate Blunts Inflammation Stimulated by Tumor Necrosis Factor- α in Liver Endothelial Cells Under Varying Oxygen States
Blacksburg High School
Sponsor: Katharine Davis

BROADCOM MASTERS AWARDS

- 2102 Charlotte Phillips
Measuring Effects of Nicotine on Neuron Activity in *Acheta domesticus*
Scott Memorial Middle School
Sponsor: Lucas Phillips
- 2203 Lydia Kipp
Time for Tea
Classical Conversations
Sponsor: Beth B. Kipp
- 2304 Charlotte Stevens
From Contaminated to Clean: How Filtering Can Clean Water
Classical Conversations
Sponsor: Cynthia Stevens
- 2402 Gregory Ghoorahoo
Batter Up! The Difference in Hitting Power
Classical Conversations
Sponsor: Leslie Ghoorahoo

- 2503 Elias Stout
Did You Hear That? What Materials Work Best for Soundproofing
Graham Middle School
Sponsor: Holly Smith
- 2601 Aynsley Krum
Through Thick and Thin
Classical Conversations
Sponsor: Marisa Krum
- 2701 Bethany Abbott
How Does the Shape of a Light Bulb Affect the Luminosity of Light?
Shawsville Middle School
Sponsor: Amy Guerin

GENIUS OLYMPIAD

- 103 Christian Shushok
Openness Factor and Large Mammal Use of Highway Underpasses: An Observational Study of State Mitigation Techniques
Blacksburg High School
Sponsor: Katharine Davis
- 804 Shayla Meadow Utzinger
Analysis of the Pressure Distribution of Differing Widths and Tensions of Backpacking Hammock Straps
Blacksburg High School
Sponsor: Katharine Davis

LEMELSON EARLY INVENTOR AWARD

- 2503 Elias Stout
Did You Hear That? What Materials Work Best for Soundproofing
Graham Middle School
Sponsor: Holly Smith

MANUFACTURING TECHNOLOGY CENTER AWARD

- 904 Henry Myers IV
The Structure of a Quadcopter Drone Under Crash Conditions
Blacksburg High School
Sponsor: Katharine Davis

MOUNT TABOR RURITAN AWARDS

Junior Division

- 2301 Molly Jones
What Wood You Use?
Graham Middle School
Sponsor: Holly Smith
- 2303 Isaac Meade
How Does Your Garden Grow?
Tazewell Middle School
Sponsor: Deborah Mason

Senior Division

- 202 Anna Addison
Parental Perceptions of the Benefit of Technology in Young Children, Focused in Southwest Virginia
Southwest Virginia Governor's School
Sponsor: Greg Riffe
- 213 Uche Okoronkwo
The Effect of MMR Facts on Human Views
Southwest Virginia Governor's School
Sponsor: Sherry Pugh

MU ALPHA THETA

- 1101 Gage Amesquita
Determining the Effectiveness of Lock Washers in High Vibration Environments
Southwest Virginia Governor's School
Sponsor: Matthew Frazier

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION EARTH SYSTEM SCIENCE AWARD

- 703 Grace Shen
The Effects of Storm Intensity on the Filtration of Microplastics from Sediment
Blacksburg High School
Sponsor: Katharine Davis

NATIONAL OCEANIC AND ATMOSPHERIC ASSOCIATION

- 207 Diego Elias
Analysis of Public Perception of Climate Change in the New River Valley Using Contingent Valuation
Blacksburg High School
Sponsor: Katharine Davis

NATIONAL WEATHER SERVICE AWARD

- 601 Brandon Fan
An AI-based System for Early Detection of Natural Disaster and Incidents Using Open Data
Blacksburg High School
Sponsor: Katharine Davis

OFFICE OF NAVAL RESEARCH AWARDS DISTINGUISHED ACHIEVEMENT AWARDS

Junior Division

- 2102 Charlotte Phillips
Measuring Effects of Nicotine on Neuron Activity in Acheta domesticus
Scott Memorial Middle School
Sponsor: Lucas Phillips
- 2503 Elias Stout
Did You Hear That? What Materials Work Best for Soundproofing
Graham Middle School
Sponsor: Holly Smith
- 2701 Bethany Abbott
How Does the Shape of a Light Bulb Affect the Luminosity of Light?
Shawsville Middle School
Sponsor: Amy Guerin

Senior Division

- 804 Shayla Meadow Utzinger
Analysis of the Pressure Distribution of Differing Widths and Tensions of Backpacking Hammock Straps
Blacksburg High School
Sponsor: Katharine Davis

- 903 Keaton Hansen
Simple Stopper Device for Use and Attachment on Existing Shopping Carts
Southwest Virginia Governor's School
Sponsor: Matthew Frazier

**RADFORD UNIVERSITY SIGMA XI CHAPTER DISTINGUISHED AWARD
IN SCIENCE**

Junior Division

- 2505 Elijah Tomiak
Electromagnets: How Many Coils Are More Powerful
Scott Memorial Middle School
Sponsor: April Schmidt

Senior Division

- 601 Brandon Fan
An AI-based System for Early Detection of Natural Disaster and Incidents Using Open Data
Blacksburg High School
Sponsor: Katharine Davis

**RICOH CORPORATION
SUSTAINABLE DEVELOPMENT AWARD**

- 801 Raaj Aggarwal
How Different Levels of pH Affect the Efficiency, Productivity, and Chemical Composition of Hydrogen in Hydrolysis Converters
Southwest Virginia Governor's School
Sponsor: Jared Brown

SOCIETY FOR IN VITRO BIOLOGY

- 401 Cameron Gilmore
Isolating the Periplasmic Region of GacS(39-164) from P. aeruginosa
Blacksburg High School
Sponsor: Katharine Davis

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

- 503 Hannah Dishner
The Extraction of Lead from Cathode Ray Tubes Through the Use of Acidic Water Leaching
Southwest Virginia Governor's School
Sponsor: Jared Brown

UNITES STATES AIR FORCE DISTINGUISHED ACHIEVEMENT AWARDS

- 101 Katie Highfield
Quantifying Pre- to Post-Data Involving a Blast Induced Neurotrauma
Blacksburg High School
Sponsor: Katharine Davis
- 502 Isabella Burgoyne
Using Cellulose Nanocrystals as a Filter for Methane and Nitrogen Dioxide
Southwest Virginia Governor's School
Sponsor: Jared Brown
- 601 Brandon Fan
An AI-based System for Early Detection of Natural Disaster and Incidents Using Open Data
Blacksburg High School
Sponsor: Katharine Davis
- 1105 Vishvesha Sridhar
Identification of the Gradient Drift Instability in the Sub-auroral Polarization Stream
Blacksburg High School
Sponsor: Katharine Davis

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY LETTER

- 701 Emma Freeborn
Evaluating Forest Industry Educational Opportunities in Southwest Virginia
Southwest Virginia Governor's School
Sponsor: Heather Lowe
- 702 Jack Graves
The Difference of pH and Nitrogen Levels in Natural Ponds Compared to Man-Made Ponds
Southwest Virginia Governor's School
Sponsor: Jared Brown

- 703 Grace Shen
The Effects of Storm Intensity on the Filtration of Microplastics from Sediment
Blacksburg High School
Sponsor: Katharine Davis
- 704 Virginia Worrell
Determining the Toxicological Effects of Polyurethane Foam and Complex Leachate on Artemia Nauplii
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
- 801 Raaj Aggarwal
How Different Levels of pH Affect the Efficiency, Productivity, and Chemical Composition of Hydrogen in Hydrolysis Converters
Southwest Virginia Governor's School
Sponsor: Jared Brown
- 804 Shayla Meadow Utzinger
Analysis of the Pressure Distribution of Differing Widths and Tensions of Backpacking Hammock Straps
Blacksburg High School
Sponsor: Katharine Davis

UNITED STATES METRIC ASSOCIATION

- 902 Kate Childers
The Application of Fiber Optic Multi-Core Shape Sensing Fibers on Flexible Models
Southwest Virginia Governor's School
Sponsor: Matthew Frazier

UNITED STATES STOCKHOLM JUNIOR WATER PRIZE

- 703 Grace Shen
The Effects of Storm Intensity on the Filtration of Microplastics from Sediment
Blacksburg High School
Sponsor: Katharine Davis
- 704 Virginia Worrell
Determining the Toxicological Effects of Polyurethane Foam and Complex Leachate on Artemia Nauplii
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

- 803 Adam Downs
Analyzing the Relationship Between Brine Viscosity and Anti-Icing Viability Across Multiple Snow Cycles
Southwest Virginia Governor's School
Sponsor: Jared Brown

VIRGINIA DENTAL AWARDS

- 103 Christian Shushok
Openness Factor and Large Mammal Use of Highway Underpasses: An Observational Study of State Mitigation Techniques
Blacksburg High School
Sponsor: Katharine Davis
- 303 Haley Hansen
Assessing Compliance of Fourth and Fifth Grade Students with a National Backpack Weight Guideline
Southwest Virginia Governor's School
Sponsor: Heather Lowe
- 304 Kayla Horne
Commonalities in Craniosynostosis Patients
Southwest Virginia Governor's School
Sponsor: Sherry Pugh
- 403 Claire Morton
The Division Decision: The Cdc13 Protein and Cell Size Control
Blacksburg High School
Sponsor: Katharine Davis

VIRGINIA DENTAL GRAND AWARD

- 403 Claire Morton
The Division Decision: The Cdc13 Protein and Cell Size Control
Blacksburg High School
Sponsor: Katharine Davis

VIRGINIA LAKES AND WATERSHEDS

Junior Division

- 2303 Isaac Meade
How Does Your Garden Grow?
Tazewell Middle School
Sponsor: Deborah Mason

- 2304 Charlotte Stevens
From Contaminated to Clean: How Filtering Can Clean Water
Classical Conversations
Sponsor: Cynthia Stevens

Senior Division

- 703 Grace Shen
The Effects of Storm Intensity on the Filtration of Microplastics from Sediment
Blacksburg High School
Sponsor: Katharine Davis
- 704 Virginia Worrell
Determining the Toxicological Effects of Polyurethane Foam and Complex Leachate on Artemia Nauplii
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

YALE SCIENCE AND ENGINEERING ASSOCIATION AWARD

- 902 Kate Childers
The Application of Fiber Optic Multi-Core Shape Sensing Fibers on Flexible Models
Southwest Virginia Governor's School
Sponsor: Matthew Frazier

EMORY AND HENRY SCHOLARSHIP

- 304 Kayla Horne
Commonalities in Craniosynostosis Patients
Southwest Virginia Governor's School
Sponsor: Sherry Pugh

NEW RIVER COMMUNITY COLLEGE SCHOLARSHIP

- 904 Henry Myers IV
The Structure of a Quadcopter Drone Under Crash Conditions
Blacksburg High School
Sponsor: Katharine Davis

RADFORD UNIVERSITY SCHOLARSHIP

- 104 Bradley Turner
Can Implementing Additives to Polyethylene/Honeycomb Increase Galleria mellonella's Appetite for the Material?
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips
- 1102 Bryan Beckner
Can Gloves Be Introduced to Traditional-Style Drumming Without the Loss of Grip?
Southwest Virginia Governor's School
Sponsor: Matthew Frazier

WYTHEVILLE COMMUNITY COLLEGE SCHOLARSHIP

- 104 Bradley Turner
Can Implementing Additives to Polyethylene/Honeycomb Increase Galleria mellonella's Appetite for the Material?
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips