

**34th BLUE RIDGE HIGHLANDS REGIONAL SCIENCE FAIR
MARCH 7 – 8, 2025
RADFORD UNIVERSITY**

WINNERS OF SPECIAL AWARDS

AMERICAN ASSOCIATION FOR UNIVERSITY WOMEN

- 502 Ruby Hoerter**
Concentrations of B-carotene in Fresh, Canned, and Frozen Carrots
Southwest Virginia Governor's School
Sponsor: Jared Brown
- 504 Addison Sheets**
Determining the Accuracy of Chlorinity in Public Pools
Southwest Virginia Governor's School
Sponsor: Jared Brown

**AMERICAN CHEMICAL SOCIETY
TENNESSEE VIRGINIA HIGHLANDS SECTION**

First Place

- 505 Natalie Tessar**
Exploring the Relationship Between Metalloids and Tampon Absorbency Sizes
Southwest Virginia Governor's School
Sponsor: Jared Brown

Second Place

- 502 Ruby Hoerter**
Concentrations of B-carotene in Fresh, Canned, and Frozen Carrots
Southwest Virginia Governor's School
Sponsor: Jared Brown

Third Place

- 601 Connor Beasley**
Identification and Analysis of Fungal Ice Nucleic Candidate Proteins with Computational Biochemistry
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

AMERICAN CHEMICAL SOCIETY VIRGINIA BLUE RIDGE SECTION

Junior Division

2101 Silas Phillips

Exploring Indicators of Cellular Respiration in Saccharomyces cerevisiae with Levulose, Dextrose, and Sucrose

Scott Memorial Middle School

Sponsor: Lucas Phillips

Senior Division

505 Natalie Tessar

Exploring the Relationship Between Metalloids and Tampon Absorbency Sizes

Southwest Virginia Governor's School

Sponsor: Jared Brown

Virginia State Science and Engineering Fair Delegate

AMERICAN PSYCHOLOGICAL ASSOCIATION

212 Bisan Rai

The Correlation Between Nicotine Patch Usage to Episodic Future Thinking and Contingency Management within a Research Environment

Southwest Virginia Governor's School

Sponsor: Megan Arnold

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

401 Athithi Prakash

Novel Engineered Anticancer Biomaterial for Non-Invasive Melanoma Treatment

Blacksburg High School

Sponsor: Katharine Davis

AMERICAN SOCIETY OF BIOCHEMISTRY AND MOLECULAR BIOLOGY AWARD

401 Athithi Prakash

Novel Engineered Anticancer Biomaterial for Non-Invasive Melanoma Treatment

Blacksburg High School

Sponsor: Katharine Davis

AMERICAN SOCIETY OF MAMMALOGISTS

- 102 Becca Lowe**
Stand Still! A Comparison of Positive and Negative Reinforcement in Equine Training
Blacksburg High School
Sponsor: Katharine Davis
- 201 Sydney Deane**
Impact of Alternative Marketing Strategies on the Perception of Shelter Animals
Blacksburg High School
Sponsor: Katharine Davis
- 203 Ashley Layne**
Exploring the Relationships Between Household Income and Type of Pet Owned
Southwest Virginia Governor's School
Sponsor: Greg Riffe
- 2102 Virginia Vandyke**
Fat or Fluffy 2.0
Riverview Elementary/Middle School
Sponsor: Whitney Vandyke

ASSOCIATION FOR WOMEN GEOSCIENTISTS

- 706 Alexandra Ni**
Temperature and Distance from Landfills on Methane and Carbon Dioxide Levels in Soil
Southwest Virginia Governor's School
Sponsor: Jared Brown

BIOMEDICAL ENGINEERING AWARD VIRGINIA TECH

- 303 Elizabeth Zhang**
Morphological Changes to the Pelvic Floor Muscle Complex Before, During, and After Pregnancy in a Murine Model
Blacksburg High School
Sponsor: Katharine Davis

GENIUS OLYMPIAD

101 Xavier Gitre
Interspecific Social Networks of Parulidae Warblers in Active Migratory Passage
Blacksburg High School
Sponsor: Katharine Davis

906 Ian Yu
A Novel Approach to Martian Obstacle Detection Through Ultrasonic Transducers
Blacksburg High School
Sponsor: Katharine Davis

IOTA SIGMA PI AWARDS

Junior Division

2306 Jacelyn Peak
Starlite Defense! The Fireproof Wonder!
Twin Valley High School
Sponsor: Nikki Peak

Senior Division

505 Natalie Tessar
Exploring the Relationship Between Metalloids and Tampon Absorbency Sizes
Southwest Virginia Governor's School
Sponsor: Jared Brown

LEMELSON EARLY INVENTOR PRIZE

2305 Xander Matney
What Melts Ice the Fastest?
Twin Valley Elementary/Middle School
Sponsor: Rebekah Romang

MOUNT TABOR RURITAN CLUB AWARDS

703 Lucas Holland
The Relationship Between Heat and Income in Virginia: A Correlational Study
Southwest Virginia Governor's School
Sponsor: Sherry Pugh

704 Finn Lucas
Effectiveness of Water Treatment Processes
Southwest Virginia Governor's School
Sponsor: Jared Brown

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
EARTH SYSTEM SCIENCE AWARD**

- 1102 Joshua Osemobor**
Environmental Limiting Factors of the Plankton Paradox
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

NATIONAL OCEANIC AND ATMOSPHERIC ASSOCIATION

- 703 Lucas Holland**
The Relationship Between Heat and Income in Virginia: A Correlational Study
Southwest Virginia Governor's School
Sponsor: Sherry Pugh

NATIONAL WEATHER SERVICE AWARD

- 703 Lucas Holland**
The Relationship Between Heat and Income in Virginia: A Correlational Study
Southwest Virginia Governor's School
Sponsor: Sherry Pugh

**OFFICE OF NAVAL RESEARCH
DISTINGUISHED ACHIEVEMENT AWARDS**

Junior Division

- 2101 Silas Phillips**
*Exploring Indicators of Cellular Respiration in Saccharomyces cerevisiae with
Levulose, Dextrose, and Sucrose*
Scott Memorial Middle School
Sponsor: Lucas Phillips

- 2502 Aaron Hess**
Pitch Perfect
Homeschool
Sponsor: Danielle Hess

Senior Division

- 101 Xavier Gitre**
Interspecific Social Networks of Parulidae Warblers in Active Migratory Passage
Blacksburg High School
Sponsor: Katharine Davis

902 Larah Clemons
The Effect of Mass Distribution in a Rotating Mass Wave Energy Converter
Southwest Virginia Governor's School
Sponsor: Matt Frazier

904 Minh Nguyen
Optimizing Meta-Atoms for Large Scale Metalenses
Blacksburg High School
Sponsor: Katharine Davis

RADFORD UNIVERSITY SIGMA XI CHAPTER DISTINGUISHED AWARD IN SCIENCE

Junior Division

2502 Aaron Hess
Pitch Perfect
Homeschool
Sponsor: Danielle Hess

Senior Division

602 Rishi Nair
AI-Augmented Computational Modeling of Bispecific Antibody Targeting B7H4+ Cancer Cells and CD3e+ CAR T-Cells for Targetd Therapy in Solid Tumors
Blacksburg High School
Sponsor: Katharine Davis

REGENERON BIOMEDICAL SCIENCE AWARD

401 Athithi Prakash
Novel Engineered Anticancer Biomaterial for Non-Invasive Melanoma Treatment
Blacksburg High School
Sponsor: Katharine Davis

RICOH CORPORATION SUSTAINABLE DEVELOPMENT AWARD

1103 Charlotte Phillips
Investigating Microplastic Trapping Efficiency of Coral Reef Regrowth Structures in Simulated Ocean Currents in the Presence of Modeled Acropora cervicomis
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

SOCIETY FOR IN VITRO BIOLOGY AWARD

1305 Eleanor Steele

Effects of Biochar Soil Amendment of Pisam sativum Under Flood Conditions

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

STOCKHOLM JUNIOR WATER PRIZE

First Place

1103 Charlotte Phillips

Investigating Microplastic Trapping Efficiency of Coral Reef Regrowth Structures in Simulated Ocean Currents in the Presence of Modeled Acropora cervicomis

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Second Place

701 Jarib Cruz

The Effect of Varying Magnetic Field Intensities on the Solubility of Minerals

Southwest Virginia Governor's School

Sponsor: Jared Brown

THERMO FISHER SCIENTIFIC JUNIOR INNOVATORS AWARD

2101 Silas Phillips

Exploring Indicators of Cellular Respiration in Saccharomyces cerevisiae with Levulose, Dextrose, and Sucrose

Scott Memorial Middle School

Sponsor: Lucas Phillips

2306 Jacelyn Peak

Starlite Defense! The Fireproof Wonder!

Twin Valley High School

Sponsor: Nikki Peak

UNITED STATES AIR FORCE AWARD

212 Bisan Rai

The Correlation Between Nicotine Patch Usage to Episodic Future Thinking and Contingency Management within a Research Environment

Southwest Virginia Governor's School

Sponsor: Megan Arnold

- 402 Weston Smith**
StepSense: Advancing Neuroprosthetic Solutions for Diabetic Peripheral Neuropathy
Southwest Virginia Governor's School
Sponsor: Megan Arnold
- 801 Austin Quesenberry**
Examining the Major Influences on Running Performance with a Focus on Fatigue
Southwest Virginia Governor's School
Sponsor: Greg Riffe
- 906 Ian Yu**
A Novel Approach to Martian Obstacle Detection Through Ultrasonic Transducers
Blacksburg High School
Sponsor: Katharine Davis

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY LETTER

- 701 Jarib Cruz**
The Effect of Varying Magnetic Field Intensities on the Solubility of Minerals
Southwest Virginia Governor's School
Sponsor: Jared Brown
- 702 Vivian Fant**
Assessing Microplastic Contamination in Agricultural and Mountainous Streams of Grayson County
Southwest Virginia Governor's School
Sponsor: Sherry Pugh
- 703 Lucas Holland**
The Relationship Between Heat and Income in Virginia: A Correlational Study
Southwest Virginia Governor's School
Sponsor: Sherry Pugh
- 704 Finn Lucas**
Effectiveness of Water Treatment Processes
Southwest Virginia Governor's School
Sponsor: Jared Brown
- 705 Braeden Musser**
Levels of Dissolved O₂, pH, and Nitrate in Water
Southwest Virginia Governor's School
Sponsor: Jared Brown

706 Alexandra Ni
Temperature and Distance from Landfills on Methane and Carbon Dioxide Levels in Soil
Southwest Virginia Governor's School
Sponsor: Jared Brown

UNITED STATES METRIC ASSOCIATION

1205 Alexandria Swenson
Aesthetic Properties of Alginate-Based Yarn and Its Commercial Counterparts
Southwest Virginia Governor's School
Sponsor: Jared Brown

EDWARD VIA COLLEGE OF OSTEOPATHIC MEDICINE VIRGINIA PUBLIC HEALTH AND HEALTHCARE AWARD

Junior Division

First Place

2202 Katelynn Owens
Heartbeat
Council High School
Sponsor: Rita Breeding

Second Place

2301 Allie Compton
Oxidation
Council High School
Sponsor: Rita Breeding

Third Place

2101 Silas Phillips
Exploring Indicators of Cellular Respiration in Saccharomyces cerevisiae with Levulose, Dextrose, and Sucrose
Scott Memorial Middle School
Sponsor: Lucas Phillips

Honorable Mention

2502 Aaron Hess
Pitch Perfect
Homeschool
Sponsor: Danielle Hess

Senior Division

First Place

202 Casey Felts

The Impact of Local Resource Awareness on Selection of Local Sources

Southwest Virginia Governor's School

Sponsor: Megan Arnold

Second Place

702 Vivian Fant

Assessing Microplastic Contamination in Agricultural and Mountainous Streams of Grayson County

Southwest Virginia Governor's School

Sponsor: Sherry Pugh

Third Place

1305 Eleanor Steele

Effects of Biochar Soil Amendment of Pisum sativum Under Flood Conditions

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Honorable Mention

1304 Lauren Linford

The Effect of Permethrin Compared to a Hot Pepper Solution as a Pesticide Against Crickets

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

VIRGINIA LAKES AND WATERSHEDS

Junior Division

2401 Leela Bradbury-Swarup and Letian Zhou

An Assessment of Flash Drought Variability and Index Concordance

Blacksburg Middle School

Sponsor: Samarth Swarup

Senior Division

701 Jarib Cruz

The Effect of Varying Magnetic Field Intensities on the Solubility of Minerals

Southwest Virginia Governor's School

Sponsor: Jared Brown

YALE SCIENCE AND ENGINEERING ASSOCIATION AWARD

- 906 Ian Yu**
A Novel Approach to Martian Obstacle Detection Through Ultrasonic Transducers
Blacksburg High School
Sponsor: Katharine Davis

EMORY AND HENRY SCHOLARSHIP

- 902 Larah Clemons**
The Effect of Mass Distribution in a Rotating Mass Wave Energy Converter
Southwest Virginia Governor's School
Sponsor: Matt Frazier

NEW RIVER COMMUNITY COLLEGE SCHOLARSHIP

- 1303 Sage Lahmers**
Symbiotic Strength: Evaluating Mycorrhizal & Nitrogen-Fixing Influences on Plant Fitness
Blacksburg High School
Sponsor: Katharine Davis

RADFORD UNIVERSITY SCHOLARSHIP

- 902 Larah Clemons**
The Effect of Mass Distribution in a Rotating Mass Wave Energy Converter
Southwest Virginia Governor's School
Sponsor: Matt Frazier

- 1303 Sage Lahmers**
Symbiotic Strength: Evaluating Mycorrhizal & Nitrogen-Fixing Influences on Plant Fitness
Blacksburg High School
Sponsor: Katharine Davis

WYTHEVILLE COMMUNITY COLLEGE SCHOLARSHIP

- 1103 Charlotte Phillips**
*Investigating Microplastic Trapping Efficiency of Coral Reef Regrowth Structures in Simulated Ocean Currents in the Presence of Modeled *Acropora cervicomis**
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips