

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

WINNERS BY CATEGORY

GRAND AWARD WINNERS

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

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

GRAND AWARD ALTERNATE

1001 Quinlan Beegle
Developing High Friction Insoles to Reduce the Size and Frequency of Microslips in Sockless Track Athletes' Running Economy
Southwest Virginia Governor's School
Sponsor: Matt Frazier

SENIOR DIVISION

Animal Sciences

First Place

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

Second Place

103 Emily Paul
The Effects of Heavy Metal Contaminants on Negative Phototropism Behaviors in Ephemeroptera Species
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

Third Place

104 Garrison Wheatley

The Effect of Water Temperature on the Time that Peltodytes duodecimpunctatus Spends Under Water

Southwest Virginia Governor's School

Sponsor: Sherry Pugh

Honorable Mention

102 Becca Lowe

Stand Still! A Comparison of Positive and Negative Reinforcement in Equine Training

Blacksburg High School

Sponsor: Katharine Davis

Behavioral and Social Sciences

First Place

208 Enzo Nunez

Does the Percentage of Industry Jargon in Meta Description Tags Have an Impact on Website Engagement Rate?

Southwest Virginia Governor's School

Sponsor: Sam Muriello

Second Place

211 Ida Polys

Gauging the Cultural Relevance of Bluegrass Lyrics to Central Appalachia via Linguistic Analysis

Blacksburg High School

Sponsor: Katharine Davis

Third Place

202 Casey Felts

The Impact of Local Resource Awareness on Selection of Local Sources

Southwest Virginia Governor's School

Sponsor: Megan Arnold

Honorable Mention

206 Molly Morris

The Correlation Between Milk Packaging Types and Human Perception of Quality and Price

Southwest Virginia Governor's School

Sponsor: Greg Riffe

Biomedical and Health Sciences

First Place

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

Second Place

301 Jackson Pollyea

The Effect of Sleep Quality on the Power Output of Youth Cyclists

Blacksburg High School

Sponsor: Katharine Davis

Third Place

302 Nicholas Thompson

The Impact of Arm Position on Blood Pressure Measurements

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Biomedical Engineering + Translational Medical Science

First Place

401 Athithi Prakash

Novel Engineered Anticancer Biomaterial for Non-Invasive Melanoma Treatment

Blacksburg High School

Sponsor: Katharine Davis

Second Place

402 Weston Smith

StepSense: Advancing Neuroprosthetic Solutions for Diabetic Peripheral Neuropathy

Southwest Virginia Governor's School

Sponsor: Megan Arnold

Chemistry

First Place

505 Natalie Tessar

Exploring the Relationship Between Metalloids and Tampon Absorbency Sizes

Southwest Virginia Governor's School

Sponsor: Jared Brown

Second Place

504 Addison Sheets

Determining the Accuracy of Chlorinity in Public Pools

Southwest Virginia Governor's School

Sponsor: Jared Brown

Third Place

502 Ruby Hoerter

Concentrations of B-carotene in Fresh, Canned, and Frozen Carrots

Southwest Virginia Governor's School

Sponsor: Jared Brown

Honorable Mention

503 Kasch Morrell

How Do New River Facilities Relate to Total Nitrogen Content in the New River?

Southwest Virginia Governor's School

Sponsor: Jared Brown

Computational Biology and Bioinformatics

First Place

602 Rishi Nair

AI-Augmented Computational Modeling of Bispecific Antibody Targeting B7H4+ Cancer Cells and CD3e+ CAR T-Cells for Targeted Therapy in Solid Tumors

Blacksburg High School

Sponsor: Katharine Davis

Second Place

601 Connor Beasley

Identification and Analysis of Fungal Ice Nucleic Candidate Proteins with Computational Biochemistry

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Third Place

603 Thomas Payne

Exploring Beta-Diversity Differences Between Natural and Artificial Lakes Using Metagenomic Analysis

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Earth and Environmental Sciences

First Place

701 Jarib Cruz

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

Southwest Virginia Governor's School

Sponsor: Jared Brown

Second Place

704 Finn Lucas

Effectiveness of Water Treatment Processes

Southwest Virginia Governor's School

Sponsor: Jared Brown

Third Place

702 Vivian Fant

Assessing Microplastic Contamination in Agricultural and Mountainous Streams of Grayson County

Southwest Virginia Governor's School

Sponsor: Sherry Pugh

Honorable Mention

705 Braeden Musser

Levels of Dissolved O₂, pH, and Nitrate in Water

Southwest Virginia Governor's School

Sponsor: Jared Brown

Embedded Systems + Mathematics

First Place

801 Austin Quesenberry

Examining the Major Influences on Running Performance with a Focus on Fatigue

Southwest Virginia Governor's School

Sponsor: Greg Riffe

Second Place

802 Kyle Stephens

Change in Throwing Performance Throughout the History of the Olympics

Southwest Virginia Governor's School

Sponsor: Greg Riffe

Third Place

803 Matthias Wright

Creating a Template for P=NP

Southwest Virginia Governor's School

Sponsor: Sam Muriello

Energy: Sustainable Materials and Design + Physics and Astronomy

First Place

906 Ian Yu

A Novel Approach to Martian Obstacle Detection Through Ultrasonic Transducers

Blacksburg High School

Sponsor: Katharine Davis

Second Place

904 Minh Nguyen

Optimizing Meta-Atoms for Large Scale Metalenses

Blacksburg High School

Sponsor: Katharine Davis

Third Place

901 Emma Biesterveld

How Does Spin Rate Affect the Velocity of a Pitch and What is the Main Correlation Between Them?

Southwest Virginia Governor's School

Sponsor: Matt Frazier

Honorable Mention

902 Larah Clemons

The Effect of Mass Distribution in a Rotating Mass Wave Energy Converter

Southwest Virginia Governor's School

Sponsor: Matt Frazier

Engineering Technology: Statics and Dynamics

First Place

1004 Spencer Sisson

Sensor to Measure Tilt While Running

Southwest Virginia Governor's School

Sponsor: Matt Frazier

Second Place

1001 Quinlan Beegle

Developing High Friction Insoles to Reduce the Size and Frequency of Microslips in Sockless Track Athletes' Running Economy

Southwest Virginia Governor's School

Sponsor: Matt Frazier

Third Place

1005 Amelia Sprano

Passive Solar Heater

Southwest Virginia Governor's School

Sponsor: Matt Frazier

Honorable Mention

1003 Ian Jora Macrea

Repeated Impacts on Cycling Helmet Efficacy

Blacksburg High School

Sponsor: Katharine Davis

Environmental Engineering + Microbiology

First Place

1103 Charlotte Phillips

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

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Second Place

1102 Joshua Osemobor

Environmental Limiting Factors of the Plankton Paradox

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Third Place

1101 Sophia Chavez

*Effect of High-Density Polyethylene Microplastics on Growth of *Chlorella**

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Materials Science

First Place

1205 Alexandria Swenson

Aesthetic Properties of Alginate-Based Yarn and Its Commercial Counterparts

Southwest Virginia Governor's School

Sponsor: Jared Brown

Second Place

1204 Lydia Pratt

Effects of Coatings on the Ultrasonic Testing of Welds on Structural Steel

Southwest Virginia Governor's School

Sponsor: Sherry Pugh

Third Place

1202 Alix Bartos

Evaluating the Durability of Writing Under Laboratory Conditions: A Comparative Study on Spills and Sunlight

Southwest Virginia Governor's School

Sponsor: Jared Brown

Plant Sciences

First Place

1305 Eleanor Steele

Effects of Biochar Soil Amendment of Pisam sativum Under Flood Conditions

Southwest Virginia Governor's School

Sponsor: Rebecca Phillips

Second Place

1301 Saige Carico

Flavobacterium capsulatum on Drought Tolerance in Pea Plants

Southwest Virginia Governor's School

Sponsor: Sherry Pugh

Third Place

1303 Sage Lahmers

Symbiotic Strength: Evaluating Mycorrhizal & Nitrogen-Fixing Influences on Plant Fitness

Blacksburg High School

Sponsor: Katharine Davis

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

Robotics and Intelligent Machines

First Place

1402 Ingrid Jora Macrea

The Accuracy of an American Sign Language Recognition Deep Neural Network Under Healthcare Conditions

Blacksburg High School

Sponsor: Katharine Davis

Second Place

1401 William Ballard

Drones and Golf Simulator Accuracy
Southwest Virginia Governor's School
Sponsor: Matt Frazier

Junior Division

Animal Sciences + Biochemistry

First Place

2101 Silas Phillips

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

Second Place

2102 Virginia Vandyke

Fat or Fluffy 2.0
Riverview Elementary/Middle School
Sponsor: Whitney Vandyke

Behavioral and Social Sciences

First Place

2201 Arabella Barton and Leah Wilson

Memory Check
Council High School
Sponsor: Rita Breeding

Second Place

2202 Katelynn Owens

Heartbeat
Council High School
Sponsor: Rita Breeding

Chemistry

First Place

2306 Jacelyn Peak

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

Second Place

2305 Xander Matney

What Melts Ice the Fastest?

Twin Valley Elementary/Middle School

Sponsor: Rebekah Romang

Third Place

2307 Mia Sanders

Nuttin But Power

Twin Valley High School

Sponsor: Pamela Deel

Honorable Mention

2301 Allie Compton

Oxidation

Council High School

Sponsor: Rita Breeding

Earth and Environmental Science + Physics and Astronomy

First Place

2402 Cooper Justice and Wyatt Street

Explaining Physics Through Balloon Car Experiment

Riverview Elementary/Middle School

Sponsor: Amanda Shelton

Second Place

2401 Leela Bradbury-Swarup and Letian Zhou

An Assessment of Flash Drought Variability and Index Concordance

Blacksburg Middle School

Sponsor: Samarth Swarup

Third Place

2405 Lindsay Owens and Zoey McGlothlin

Liquid Density

Council High School

Sponsor: Rita Breeding

Honorable Mention

2403 Angela Lin

Will It Sink or Will It Float

Riverview Elementary/Middle School

Sponsor: Amanda Shelton

Materials Science

First Place

2502 Aaron Hess

Pitch Perfect

Homeschool

Sponsor: Danielle Hess

Second Place

2501 Mattie Christian

Lights Out

Hurley Elementary/Middle School

Sponsor: Nathan Stacy