

**32nd BLUE RIDGE HIGHLANDS REGIONAL SCIENCE FAIR
MARCH 3-4, 2023
RADFORD UNIVERSITY**

WINNERS BY CATEGORY

GRAND AWARD WINNERS

803 Jesse Dulaney
Anti-Lock Brakes Applied to a Bicycle
Southwest Virginia Governor's School
Sponsor: Matt Frazier

1002 Davis Reitzel
Exploring Collatz Conjecture
Southwest Virginia Governor's School
Sponsor: Greg Riffe

GRAND AWARD ALTERNATE

401 Sriya Sridhar
*Utilizing Flow Cytometry to Evaluate the Sterilization of a 96 Well Plate Pipette
Tips by the Opentrons Liquid Handling Robot*
Blacksburg High School
Sponsor: Katharine Davis

SENIOR DIVISION

Animal Sciences

First Place

101 Jonathan Distler
*Observed Behavioral Differences Among White-Tailed Deer Populations on
Private vs Public Lands*
Blacksburg High School
Sponsor: Katharine Davis

Behavioral and Social Sciences

First Place

201 Laken Barnette
Evaluating Comfort Levels in Teenage Patients When Talking to a Physician
Southwest Virginia Governor's School
Sponsor: Greg Riffe

Second Place

203 Caoilainn Christensen
Comparative Content Engagement Analysis of Credentialed and Non-Credentialed Nutrition Professionals on Instagram
Blacksburg High School
Sponsor: Katharine Davis

Third Place

208 Garreth Rudd
How Do Young Adults View the Value of Human Lives Using the Trolley Problem
Southwest Virginia Governor's School
Sponsor: Greg Riffe

Honorable Mention

202 Benjamin Burnette
Classical vs Traditional Appalachian Music in Generating an Emotional Response
Southwest Virginia Governor's School
Sponsor: Greg Riffe

Biomedical and Health Sciences Cellular and Molecular Biology

First Place

304 Havva Gasimova
Link Between Environment and Food Allergy
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

Second Place

308 Andy Tawney
Repeat Lengths of RS3 Alleles Associated with the Rate of Health-Related Risky Behavior in Young Adults
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

Third Place

- 301 Mercy Akanmu
Differences In the Physical and Structural Changes During Microglial Activation in Pediatric and Adult Glioma Models
Blacksburg High School
Sponsor: Katharine Davis

Honorable Mention

- 307 Ariya Patel
A Novel Lateral Flow Immunoassay for the Detection of Parvovirus B19 Antigens in Urine
Southwest Virginia Governor's School
Sponsor: Rebecca Phillips

Biomedical Engineering

First Place

- 401 Sriya Sridhar
Utilizing Flow Cytometry to Evaluate the Sterilization of a 96 Well Plate Pipette Tips by the Opentrons Liquid Handling Robot
Blacksburg High School
Sponsor: Katharine Davis

Second Place

- 402 Adalynn Turner
Effectiveness of a Pressurized Bandage Opposed to Traditional Dressings
Southwest Virginia Governor's School
Sponsor: Matt Frazier

Third Place

- 403 Abbie White
Does Caffeine Content Influence What Students Consume?
Southwest Virginia Governor's School
Sponsor: Megan Arnold

Chemistry

First Place

- 502 Emma Ebel
Testing Hand Sanitizer Alcohol Levels with Gas Chromatography
Southwest Virginia Governor's School
Sponsor: Jared Brown

Second Place

501 David Bowman
HHO Generators
Dayspring Christian Academy
Sponsor: Doug Bowman

Third Place

505 Nyah Phipps
The Fuming of Cyanoacrylate to Identify Fingerprints
Southwest Virginia Governor's School
Sponsor: Jared Brown

**Earth and Environmental Sciences
Plant Sciences**

First Place

603 Andrew Wang
Effects of Transcriptional Factor WUSCHEL on the Regeneration of Arabidopsis thaliana
Blacksburg High School
Sponsor: Katharine Davis

Second Place

602 Charlotte Phillips
Investigating Degradation of Polyhydroxyalkanoate Drinking Straws in Freshwater and Saltwater Systems
George Wythe High School
Sponsor: Lucas Phillips

Third Place

601 James Paine
Testing the Efficacy of an Aquatic Aerator
Southwest Virginia Governor's School
Sponsor: Jared Brown

**Embedded Systems
Systems Software**

First Place

703 Asher Porter
Creating a Framework for Locating the Most Cost Effective and Environmentally Friendly Shipping Routes
Southwest Virginia Governor's School
Sponsor: Greg Riffe

Second Place

702 Hunter Miller
The Learning Curve of Coding
Southwest Virginia Governor's School
Sponsor: Sam Muriello

Third Place

701 Aun Ali
GPUs vs. CPUs with Deep Neural Networks and Matrix Multiplication
Blacksburg High School
Sponsor: Katharine Davis

Engineering Technology: Statics and Dynamics

First Place

803 Jesse Dulaney
Anti-Lock Brakes Applied to a Bicycle
Southwest Virginia Governor's School
Sponsor: Matt Frazier

Second Place

802 Zack Craighead
Comparing a DIY Lux Meter to Its Commercial Equivalent
Southwest Virginia Governor's School
Sponsor: Matt Frazier

Third Place

801 Tommie Bloomer
New Designs for a Universal Clarinet Lyre
Southwest Virginia Governor's School
Sponsor: Matt Frazier

Materials Science

First Place

902 Shane Dunford
The Cathodic Corrosion Protection Capabilities of Sacrificial Anodes in Coastal Areas
Southwest Virginia Governor's School
Sponsor: Jared Brown

Second Place

901 Aaron Bennett
Can Aerographite Be Used as an External Material in Rocketry?
Southwest Virginia Governor's School
Sponsor: Matt Frazier

Third Place

904 Kara Temple
Developing a Synthetic Blood
Southwest Virginia Governor's School
Sponsor: Jared Brown

Mathematics

First Place

1002 Davis Reitzel
Exploring Collatz Conjecture
Southwest Virginia Governor's School
Sponsor: Greg Riffe

Second Place

1001 Oscar Montgomery
Effects of School Size on Cross Country Runners' Speed
Southwest Virginia Governor's School
Sponsor: Greg Riffe

Microbiology

First Place

1101 Jessica Long
Ultrasonic Cleaning Versus FDA Approved Hand Washing Method on Cooking Equipment
Southwest Virginia Governor's School
Sponsor: Jared Brown

Second Place

1102 Tristan Reichard
The Effects of the Placement of Hand Dryers on the Growth of Bacteria
Blacksburg High School
Sponsor: Katharine Davis

Physics and Astronomy

First Place

1201 James Helmick
The Effect of Dimpling a Baseball Bat on Drag
Southwest Virginia Governor's School
Sponsor: Matt Frazier

Second Place

1202 Lili Whitesell
The Difference of a Jig's Rate of Fall
Southwest Virginia Governor's School
Sponsor: Matt Frazier

JUNIOR DIVISION

Chemistry

First Place

2108 Jacelyn Peak
Will It Plastic
Twin Valley Elementary and Middle School
Sponsor: Felicia Peak

Second Place

2105 Annelyse Farmer
What Makes Ice Melt Fastest
Homeschool
Sponsor: Chris Farmer

Third Place

2104 Abigail Deel and Shay Stocks
Cooking Up Science
Council High School
Sponsor: Rita Breeding

Honorable Mention

2101 Arabella Barton and Leah Wilson
What's Popping
Council Elementary School
Sponsor: Rita Breeding

2103 Jonas Gauge Cook and Eli McNiel
The Best Gum
Twin Valley Elementary and Middle School
Sponsor: Stephanie Cook

**Earth & Environmental Sciences
Microbiology
Plant Sciences**

First Place

2201 Aviva Krum

Hay! The Quicker Picker Upper: Exploring Natural Methods of Cleaning Up Oil Spills

Krum Classical Academy

Sponsor: Marisa Krum

Second Place

2204 Elizabeth Sarver

Stop That Dirt! (A Study of Erosion)

Classical Conversations

Sponsor: Judy Sarver

Third Place

2202 Rachel Peets

To Mold, or Not to Mold, That is the Question

Classical Christian Academy

Sponsor: Janet Peets

**Energy: Sustainable Materials and Design
Engineering Technology: Statics and Dynamics
Materials Science
Physics and Astronomy
Systems Software**

First Place

2304 Charlotte Ohanian

Virtually Un-hackable

Dawning Light Homeschool

Sponsor: John Ohanian

Second Place

2306 Isaac Strom

Bro, Does Weight Even Matter?

Homeschool

Sponsor: Kyle Strom

Third Place

2303 Autumn Hibbits and Madison Mullins
Solar Food
Riverview Elementary & Middle School
Sponsor: Rochelle Deel

Honorable Mention

2302 Grady English
Which Blade is Best?
Homeschool
Sponsor: Leslie English