

**27<sup>th</sup> Annual Blue Ridge Highlands Regional Science Fair  
March 2 - 3, 2018 – Radford University**

**AWARDS BY SPECIAL AWARDS**

**AMERICAN ASSOCIATION FOR UNIVERSITY WOMEN**

- 1003 Stevie Lowe  
***Comparisons of Antibacterial Activity of Amphibian Epidermal Secretions Against E. coli***  
Southwest Virginia Governor's School  
Sponsor: Catherine Spachmann
- 1005 Brittany Stiefel  
***Prevalence of Antibiotic Resistance in the Gut Flora (Enterobacteriaceae) of Wild and Domesticated Horses***  
Southwest Governor's School  
Sponsor: Catherine Spachmann

**AMERICAN CHEMICAL SOCIETY  
NORTHEASTERN TENNESSEE SECTION**

*First Place*

- 601 Nicholas Harvey  
***Self-Assembled TiO<sub>2</sub>/Polyelectrolyte Composite Films for Catalytic Photodegradation of Pollutants***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown

*Second Place*

- 508 Kathleen Reuwer  
***Potential Hazardous Hexavalent Chromium Exposure From the Sharpening of Ice Skate Blades***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown

*Third Place*

- 501 Drew Ayers  
***A Study on the Physical and Functional Properties of Surfactants and Their Incorporation into Biscuit Making***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown

**AMERICAN CHEMICAL SOCIETY  
VIRGINIA BLUE RIDGE SECTION**

- 601 Nicholas Harvey  
***Self-Assembled TiO<sub>2</sub>/Polyelectrolyte Composite Films for Catalytic Photodegradation of Pollutants***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown

**AMERICAN METEOROLOGICAL SOCIETY AWARD**

- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

**AMERICAN PSYCHOLOGICAL ASSOCIATION**

- 205 Audra White  
***The Effect of an OXTR Gene Variant on Empathy In Female Adolescents***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

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

- 205 Audra White  
***The Effect of an OXTR Gene Variant on Empathy In Female Adolescents***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

**AMERICAN SOCIETY OF MAMMALOGISTS**

- 102 Jeanette Reed  
***Paw-ness in Pure and Mixed Breed Canines***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips
- 1005 Brittany Stiefel  
***Prevalence of Antibiotic Resistance in the Gut Flora (Enterobacteriaceae) of Wild and Domesticated Horses***  
Southwest Governor's School  
Sponsor: Catherine Spachmann

## ARIZONA STATE UNIVERSITY SUSTAINABILITY SOLUTIONS INITIATIVES

- 405 Raaga Unmesha Vullikanti  
***Peptide Nucleic Acids as Potential Designer Antimicrobials***  
Blacksburg High School  
Sponsor: Katharine Davis
- 1005 Brittany Stiefel  
***Prevalence of Antibiotic Resistance in the Gut Flora (Enterobacteriaceae)  
of Wild and Domesticated Horses***  
Southwest Governor's School  
Sponsor: Catherine Spachmann

## ASSOCIATION FOR WOMEN GEOSCIENTISTS

- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

## BETA BETA BETA BIOLOGICAL HONOR SOCIETY EXCELLENCE IN BIOLOGICAL SCIENCES RADFORD UNIVERSITY

- 405 Raaga Unmesha Vullikanti  
***Peptide Nucleic Acids as Potential Designer Antimicrobials***  
Blacksburg High School  
Sponsor: Katharine Davis

## BIOMEDICAL ENGINEERING AWARD VIRGINIA TECH

- 302 Laura Gautier  
***The Effects of Sound Frequencies on a Tinnitus Model***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

## BROADCOM MASTERS AWARDS

- 2002 Bryce Havens  
***Tackling Toxic Taps***  
Graham Middle School  
Sponsor: Holly Smith
- 2102 Emelyn Koene  
***Laundry Detergents***  
Dayspring Christian Academy  
Sponsor: Bryan Koene
- 2203 Hannah E. Cook  
***The Science of Popcorn: A Look at Popping Efficiency***  
Classical Conversations  
Sponsor: Laura P. Cook
- 2301 Jackson Brockman  
***Nailed It***  
Classical Conversations  
Sponsor: Sarah Brockman
- 2402 Aiden Stout  
***To Burn or Not to Burn: That is the Question***  
Graham Middle School  
Sponsor: Holly Smith

## GENIUS OLYMPIAD

- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips
- 604 Olivia Smoot  
***Water Toxicity Test of a Rural Area Using Daphnia Magna***  
Southwest Virginia Governor's School  
Sponsor: Catherine Spachmann

## INTEL EXCELLENCE IN COMPUTER SCIENCE AWARD

- 1301 Brandon Fan  
***Using Deep Learning to Return Critical Documents for Clinical Decision Support Systems***  
Blacksburg High School  
Sponsor: Katharine Davis

## MANUFACTURING TECHNOLOGY CENTER AWARD

- 404 Rosa Maria Lovo  
***Monitoring the Growth of Kombucha SCOBY's in Various Types of Tea***  
Southwest Virginia Governor's School  
Sponsor: Catherine Spachmann

## MOUNT TABOR RURITAN AWARDS

- 2201 Caleb Altizer  
***The Effectiveness of a 10v Solar Panel on a 12v Battery***  
Classical Conversations  
Sponsor: Karen Altizer
- 2301 Jackson Brockman  
***Nailed It***  
Classical Conversations  
Sponsor: Sarah Brockman
- 702 Collin Gray  
***The Effects of Different Computer Components on Computer Efficiency***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier
- 1103 Noah Whitlow  
***Shock Distribution of Common Substances***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

## NASA EARTH SYSTEM SCIENCE AWARD

- 1206 Anya Robbins  
***The Effects of Acid Rain on Foliage and Prevention Using Calcium Carbonate***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

## NATIONAL OCEANIC AND ATMOSPHERIC ASSOCIATION

- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

## OFFICE OF NAVAL RESEARCH AWARDS DISTINGUISHED ACHIEVEMENT AWARDS

- 2106 Jacob White  
***Explosion of Corrosion***  
Graham Middle School  
Sponsor: Holly Smith
- 2206 Russell Alan Sarver  
***Ready Aim Fire***  
Classical Conversations  
Sponsor: Judy Sarver
- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips
- 1203 Sophia Link  
***The Role of Inositol Phosphates on Plant Development and Stress Response***  
Blacksburg High School  
Sponsor: Katharine Davis

## RADFORD UNIVERSITY SIGMA XI CHAPTER DISTINGUISHED AWARD IN SCIENCE

- 101 Tyler Kwak  
***Analyzing the Effects of Lead and Maltol on the Visual Behaviors of the Brain in Xenopus laevis Tadpoles***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

2402 Aiden Stout  
***To Burn or Not to Burn: That is the Question***  
Graham Middle School  
Sponsor: Holly Smith

## REGENERON SCIENCE TALENT SEARCH

302 Laura Gautier  
***The Effects of Sound Frequencies on a Tinnitus Model***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

801 Alexandra Barrett  
***Biomechanic Simulations to Understand the Behavior of Lift-Assist Exoskeletons***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

802 Camden Brewer  
***Hydrophobic Alto Saxophone Pads***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

804 Isabelle Hollars  
***Designing Cost Effective, Spill-Proof, and Shatter-Proof, Drinking Vessels for People Diagnosed with Parkinson's Disease***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

## RICOH CORPORATION SUSTAINABLE DEVELOPMENT AWARD

803 Ross Brown  
***Engineering a Supercapacitor Derived from Agricultural Waste***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

## SOCIETY FOR IN VITRO BIOLOGY

- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

## STOCKHOLM JUNIOR WATER PRIZE

- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips
- 1004 Aarati Pokharel and Lily Zhu  
***Isolation of a Phosphate Accumulating Organism from a Local Freshwater Source***  
Blacksburg High School  
Sponsor: Katharine Davis

## U.S. AIR FORCE DISTINGUISHED ACHIEVEMENT AWARDS

- 303 Shay Ladd  
***Astrocyte Response to Traumatic Brain Injury***  
Blacksburg High School  
Sponsor: Katharine Davis
- 503 Christopher Todd Cochran  
***The Effects of Alcohol Oxygenates on the Energy Density of Gasoline***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown
- 601 Nicholas Harvey  
***Self-Assembled TiO<sub>2</sub>/Polyelectrolyte Composite Films for Catalytic Photodegradation of Pollutants***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown



## U. S. METRIC ASSOCIATION

- 405 Raaga Unmesha Vullikanti  
***Peptide Nucleic Acids as Potential Designer Antimicrobials***  
Blacksburg High School  
Sponsor: Katharine Davis

## VIRGINIA DENTAL AWARDS

- 102 Jeanette Reed  
***Paw-ness in Pure and Mixed Breed Canines***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips
- 205 Audra White  
***The Effect of an OXTR Gene Variant on Empathy In Female Adolescents***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips
- 303 Shay Ladd  
***Astrocyte Response to Traumatic Brain Injury***  
Blacksburg High School  
Sponsor: Katharine Davis
- 405 Raaga Unmesha Vullikanti  
***Peptide Nucleic Acids as Potential Designer Antimicrobials***  
Blacksburg High School  
Sponsor: Katharine Davis
- 508 Kathleen Reuwer  
***Potential Hazardous Hexavalent Chromium Exposure From the Sharpening of Ice Skate Blades***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown
- 602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***  
Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

805 Alexander Tomiak  
***Comparing Methods of Glare Reduction from HID Headlights in External Rearview Mirrors***

Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

1005 Brittany Stiefel  
***Prevalence of Antibiotic Resistance in the Gut Flora (Enterobacteriaceae) of Wild and Domesticated Horses***

Southwest Governor's School  
Sponsor: Catherine Spachmann

1203 Sophia Link  
***The Role of Inositol Phosphates on Plant Development and Stress Response***

Blacksburg High School  
Sponsor: Katharine Davis

### **VIRGINIA DENTAL GRAND AWARD**

602 Ainsley LaPlante  
***Effects of Gasoline on Pavona frondifera and Montipora capricornis Corals***

Southwest Virginia Governor's School  
Sponsor: Rebecca Phillips

### **VIRGINIA LAKES AND WATERSHEDS**

2001 David Altizer  
***The Effect of Water Runoff on Soil Types and Erosion***

Classical Conversations  
Sponsor: Karen Altizer

1004 Aarati Pokharel and Lily Zhu  
***Isolation of a Phosphate Accumulating Organism from a Local Freshwater Source***

Blacksburg High School  
Sponsor: Katharine Davis

## YALE SCIENCE AND ENGINEERING ASSOCIATION AWARD

- 804 Isabelle Hollars  
***Designing Cost Effective, Spill-Proof, and Shatter-Proof, Drinking Vessels for People Diagnosed with Parkinson's Disease***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

## EMORY AND HENRY SCHOLARSHIP

- 204 Sydney Stephens  
***The Effectiveness of Clickbait on Students***  
Southwest Virginia Governor's School  
Sponsor: Greg Riffe

## NEW RIVER COMMUNITY COLLEGE SCHOLARSHIP

- 102 Reegal Shailesh Patel  
***The Effects of Introducing Non-Newtonian Fluids Into Football Helmet Padding On Impact Forces***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

## RADFORD UNIVERSITY SCHOLARSHIP

- 508 Kathleen Reuwer  
***Potential Hazardous Hexavalent Chromium Exposure From the Sharpening of Ice Skate Blades***  
Southwest Virginia Governor's School  
Sponsor: Jared Brown

- 1302 Aaron Vickers  
***Prediction of Aerodynamic Forces Using Machine Learning***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier

## WYTHEVILLE COMMUNITY COLLEGE SCHOLARSHIP

- 1302 Aaron Vickers  
***Prediction of Aerodynamic Forces Using Machine Learning***  
Southwest Virginia Governor's School  
Sponsor: Matthew Frazier