

Welcome to the 2010 SCJAS Annual Meeting!

To our outstanding science teachers, student members, parents, and sponsors; let me say that I am delighted to welcome you to the 2010 Annual Meeting of the South Carolina Junior Academy of Science. It has been a pleasure to work with all of you and I am excited about the culmination of this year's activities with the presentation of more than 200 SCJAS research projects at our annual meeting. This year's meeting would not have been possible without the financial and logistical support we received from the South Carolina Academy of Science and from your individual memberships.

My own involvement with the SCJAS and SCAS spans almost thirty years now. As a graduate student my first formal paper was presented at an SCAS Annual Meeting. Later as a young teacher at Brookland-Cayce High School, my students benefited greatly through their affiliation with SCJAS by participating in the various workshops and presenting their research each year. The advantages of participating actively in SCJAS programs seem obvious to those of us who have worked with the organization for many years. But, if this is your first experience, let me point out some of what you have to gain through your SCJAS membership.

1. **SCJAS encourages and supports science research: This is at the heart of why SCJAS was founded. SCJAS accomplishes this objective through research grants, oral and written research competitions, workshops that address current research and techniques, and by awarding more than \$5,000 in cash prizes for the papers and oral presentations judged to be superior in a peer-reviewed process. Your abstract can be published in the *SCAS Bulletin* and the top papers may be featured in the *SCAS Electronic Journal*. No other program in South Carolina offers these opportunities.**
2. **SCJAS membership allows you to meet and compete with the best science programs, science teachers, and students in South Carolina: At our SCJAS Fall Workshop held at Coastal Carolina in October and our Winter Workshop held at the State Museum in January, I had the pleasure to work with teachers and students from throughout South Carolina. These are schools that are routinely mentioned when any academic conversation turns to a discussion of the "best" schools in South Carolina, and the reason is simple. These science teachers and our other SCJAS sponsors, are professionals who spend many hours outside of their normal teaching duties to provide additional opportunities for their students, and students from these schools are proactive in their own education, realizing that many opportunities are only found outside of the classroom.**
3. **SCJAS participation helps you to decide on which college or university you may attend: Each year the SCJAS Fall Workshop and the Annual Meeting rotate among the various colleges and universities in South Carolina, giving each school a chance to showcase what their academic programs have to offer. In addition, at the SCAS/ SCJAS Annual Meeting, professors, undergraduate and graduate students from nearly every college and university in South Carolina will be in attendance, offering you the chance to meet these individuals and learn first-hand about their respective programs. Also, the SCJAS Winter Workshop this year featured college recruiters from twenty different colleges and universities representing more than 30 programs of study.**

4. SCJAS membership offers many other benefits: The *SCJAS Newsletter* and our SCJAS website will keep you informed of our activities, as well as, other science programs and opportunities offered throughout the state. The *SCJAS Fall and Winter Workshops* allow you to meet other members from across South Carolina, hear outstanding speakers presenting cutting edge research, and engage in a variety of breakout sessions and competitions including the Challenge Bowl. Your activities through SCJAS will help you to develop an academic resume that stands out from the rest!

All of us who work with the SCJAS are dedicated to providing the best possible programming for our members. So, let me say again how delighted I am that you are participating in the 2010 SCJAS Annual Meeting. I hope that this will be a great experience that encourages you to become a lifetime supporter of this organization. I hope to meet many of you today and at the Fall and Winter Workshops next year. Let me know if I can facilitate your involvement with the SCJAS in any manner.

Sincerely,
 Tom Reeves, PhD
 Executive Director
 South Carolina Junior Academy of Science
reevest@midlandstech.edu
 803-822-3554

2010 SCJAS Judges

<i>Category</i>	<i>Judge</i>	<i>School</i>
1. Biochemistry	Dr. Brian Dominy Dr. Karen Pompeo	Clemson University USC Sumter
2. Botany	Dr. J. Henry Slone Dr. Kajal Ghoshroy	Francis Marion University USC Sumter
3. Cell & Molecular Biology	Dr. Doug Van Hoewyk Mr. Daniel Kiernan	Coastal Carolina University USC Sumter
4. Chemistry	Dr. Lisa Brodhacker Dr. Stephen Hudson	Lander University Charleston Southern University
5. Consumer Affairs	Dr. Linda Sinclair Dr. Rebecca Hanckel	SC Dept. of Education Charleston Southern University
6. Engineering	Dr. Tim Jur Dr. Xiao-Dong Zhou	ED&T University of South Carolina

7. Environmental Science (M) LLC	E. Ray McAfee	Carolina Specialty Chemicals,
8. Environmental Science (NM)	Mr. Carey Jackson Dr. Jennifer Nyland	Presbyterian Church USC School of Medicine
9. Mathematics	Dr. Leandro Junes Dr. Maitland Rose Dr. Rigo Florez	USC Sumter USC Sumter USC Sumter
10. Microbiology	Dr. David Melson Dr. Janie Sigmon	Lander University York Technical College
11. Physics	Dr. Bob Nerbun Dr. Danny Faulkner Dr. Meredith Newby Spano	USC Sumter USC Lancaster Clemson University
12. Physiology & Health (M)	Dr. Denise Strickland Dr. Paul Housley	USC Columbia USC School of Medicine
13. Physiology & Health (NM) College	Dr. Berta Hopkins Dr. D. Margaret Hunt	Spartanburg Community USC School of Medicine
14. Psychology & Sociology	Dr. Heath Hoffmann Ms. Athena King	College of Charleston University of South Carolina
15. Zoology	Dr. Briana Timmerman Dr. Jane Weilert Dr. Steve Bishoff	USC Columbia University of South Carolina USC Sumter

2010 SCJAS Student Board Officers

President: David Zhang, Academic Magnet High School
Vice-President: Mary Caroline Lowe, Timberland High School
Vice -President : Arjun Arrgawal, Lexington High School
Secretary: Leigh Yarborough, Heathwood Hall Episcopal School
Treasurer: Sarah Law, Heathwood Hall Episcopal School
Chairman of the board: William Zhang, Academic Magnet High School

2010 SCJAS Annual Meeting Schedule

7:30 A.M. - 10:00 A.M. Registration - Rita Hollings Science Center

8:00 A.M. - 2:30 P.M. Oral presentations - Rita Hollings Science Center

12:15 P.M. - 1:15 P.M. Lunch served in Liberty Cafe

**1:30 P.M. - 3:00 P.M. Keynote Speaker: Dr. Craig Beeson, MUSC
Title: "Discovery of cytoprotective agents for
treatment of retinal degenerative diseases"
New Science Center, Room 129**

**3:30 P.M. - 5:00 P.M. Poster Session
New Science Building**

4:30 P.M. -5:30 P.M. Pizza dinner New Science Building courtyard

**5:30 P.M. - until 2010 SCJAS Awards Ceremony
New Science Building Auditorium**

- 1. Welcome: Dr. Tom Reeves, Midlands Technical College
SCJAS Executive Director**
- 2. South Carolina Science Teacher of the Year Award,
Dr. Linda Sinclair**
- 3. The American Association for Biochemistry & Molecular Biology (ASBMB) Award
Award amount: \$50 each for Biochemistry and Molecular Biology category
Presenter: Dr. Takita Felder- Sumter, Winthrop University**
- 4. Southern Atlantic Coast Section of the American Association of Physics Teachers Award
Award amount; \$100 for student winner and teacher sponsor
Presenter: Dr. Mikhail M. Agrest, Physics & Astronomy Dept. College of
Charleston**

5. Winthrop University Behavioral Science Award
Award Amount: \$50 each for oral presentation and written presentation
in category of Psychology and Sociology
Presenter: Dr. Edna Steele, Converse College

6. South Carolina Section of the American Chemical Society
Award Amount: \$100
Presenter: Dr. Jim Privett, USC Sumter

7. SC Council of Teachers of Mathematics Award
Award amount: \$100
Presenter; Tammy Taylor, Midlands Technical College

8. Nominations for 2011 AJAS meeting , Washington DC,
Presenter: Tammy Taylor, Midlands Technical College

9. 2010 SCJAS Written Presentations
Presenter: Dr. Jim Privett. USC Sumter

10. 2010 SCJAS Oral Presentations
Presenter; Dr. Edna Steele. Converse College

11. 2010 SCJAS Poster Sessions
Presenter: Tammy Taylor, Midlands Technical College

12. Closing remarks
Tammy Taylor, Midlands Technical College

Pick up judges score sheets at the front of the auditorium before you leave for the day.

**Biochemistry : Non- Menotored
Room 114 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:30 – 8:45 A.M. Title: The Effect of Fat Burning Supplements on Fat	Mary Caroline Lowe	Timberland High School
8:45 – 9:00 A.M. Title: The effects of calcium chloride concentration on the transformation of <i>E. coli</i> bacteria colonies	Olivia Harden & Pinkney Beal	Heathwood Hall Episcopal School
9:00 – 9:15 A.M. Title: An Analysis of Collagen Production in Skin in Regards to the Matricellular Protein Sparc and the Proa1 N-Propeptide	Nicole Henderson	Governor’s School for Science & Math
9:15-9:30 A.M.	BREAK	

**Botany: Non-Mentored
Room 125 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:45 – 9:00 A.M. Title: The Growth Rate and Development of Apetala1 <i>Arabidopsis thaliana</i> Versus Wild-Type <i>Arabidopsis thaliana</i> Plants	Alexandra Deluna	Timberland High School
9:00 – 9:15 A. M. Title: The Effects of <i>Philodendron scandens</i> var. <i>oxycardium</i> on the Levels of Nitrogen (Phosphonomethyl) Glycine in Water	Rachel Smith	Spring Valley High School
9:15 – 9:30 A. M. Title: The Effect of Different Amounts of <i>Rhizobia leguminosarum</i> on the Growth Rate of <i>Vigna unguiculata</i>	Amanda Grimes	Spring Valley High School
9:30 – 9:45 A.M. Title: The Effect of D-Limonene On the Morphological Structure of and Production of Oxygen By <i>Scenedesmus</i> During Photosynthesis	Sydney Johnson	Spring Valley High School
9:45 – 10:00 A.M. Title: The Effect of Various Types of Disaccharides and the Herbicide Atrazine on the Height of <i>Brassica Rapa</i>	Kristin McCutchan	Spring Valley High School
10:00-10:15 A.M. - BREAK		
10:15-10:30 A.M. Title: The Efficacy of Chlorine, Bromine, and Hydrogen Peroxide Treated Water at Preventing the Growth of <i>Chlorella pyrenoidosa</i>	Jack Lim & Sam Feldman	Heathwood Hall Episcopal School

**Botany: Mentored
Room 125 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
10:30- 10:45 A.M. Title:Cellular Localization of the Lss2 Protein Potentially involved in Rice Seed Development	McCall Rogers	Governor's School for Science & Math
10:45-11:00 A.M. Title: An Analysis of the Mobility of Allelochemicals Exuded by invasive <i>Centaurea maculosa</i> and <i>Centaurea diffusa</i>	Dylan Pruitt	Governor's School for Science & Math
11:00-11:15 A.M. Title: The Expression and Purification of N- Terminal Fragments of <i>Arabidopsis thaliana</i> Recq4a and Recq4b For Antibody Production	Lillian Elsner	Governor's School for Science & Math
11:15-11:30 A.M. Title: Antioxidant Content in Muscadine Seed and Skin Extract	Alexander Kerr	Governor's School for Science & Math
11:30-11:45 A.M. Title:The Study of Light Manipulation and the Affect On Auxin Concentration in Two Plant Species	Ivory Chen	Dutch Fork High School

**Cell/Molecular Biology: Mentored
Room 108 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
9:15 – 9:30 A. M Title:The Role of Human Alkaline Ceramidase 2 in Fenretinide Chemotherapy	Zhehao Mao	Academic Magnet High School
9:30 – 9:45 A.M. Title: Mutation Screening Analysis of the Tusc5 Gene By Automated Sequencing	Lee A. Jenkins	Governor's School for Science & Math
9:45 – 10:00 A.M. Title: The Effects of Gold Nanoparticles On 3t3 Fibroblast Cells	Kathleen Elizabeth Windsor	Governor's School for Science & Math

10:00 – 10:15 A.M. Katelyn Brianna Vereen Governor’s School for Science & Math
Title: Assessment of Oligodendrocyte Survival and Maturation in the Developing Spinal Cord
Following Activation of the Protease-Activated Receptor- 1

10:15 – 10:30 A.M Mitchell Meadors Governor’s School for Science & Math
Title: Correlation Between Heat Shock Stress and Aging in *Caenorabditis elegans*

10:30 – 10:45 A.M. James McManus, Jr Governor’s School for Science & Math
Title: Analysis of Lss2 Gene Expression Potentially involved in Rice Seed Development Using a
Promoter Reporter Gene Construct

10:45 – 11: A.M. BREAK

11:00-11:15 A.M. China Grayson Cox Governor’s School for Science & Math
Title: Systemic Amyloidosis in the *Phoenicopterus ruber ruber*

11:15-11:30 A.M. Kellie Nicole Bingham Governor’s School for Science & Math
Title: The Effects of interleukins On Adult and Neonatal Fibroblasts

11:30 -11:45 A.M. Alexis Bertram Governor’s School for Science & Math
Title: Expression of the Nuclear Hormone Receptor 97 Family Members in *Daphnia magna*

11:45 -12:00 P.M John Beasley Governor’s School for Science & Math
Title: Myelin-Associated Glycoprotein Production is Decreased in the Developing Spinal Cord
Following Activation of Protease-Activated Receptor-1

**Cell/Molecular Biology: Non-Mentored
Room 108 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
12:00 P.M. -12:15 P.M.	Ming Yee Wong	Spring Valley High School
Title: A Bioinformatic Analysis of the Conserved Domains of Aquaporin Proteins in <i>Homo sapiens</i> and <i>Arabidopsis thaliana</i>		

**Chemistry:Non-Mentored
Room 114 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
9:45 – 10:00 A.M. Title: Car Allowance Rebate System: the Effect of Aluminum and Magnesium on the Formation of a Sodium Silicate Layer	Sanchit Kapur & Connor Kirol	Heathwood Hall Episcopal School
10:00 – 10:15 A.M. Title: The Identification of A Lipstick Brand: a Comparison of the Red Pigment R _f Value using Thin Layer Chromatography	Ali Robertson & Margaret Mercer	Heathwood Hall Episcopal School
10:15 -10:30 A.M. Title: The Effect of Sodium Benzoate and Sodium Silicate on Mitigationg Zinc Corrsion in Potassium Hydroxide	Sean Noh	Spring Valley High School
10:30 - 10:45 A.M. Title: The Effect of Mild Annealing on Graphene-Oxide Sheet Strength	Kekeli Dawes	Spring Valley High School

**Chemistry
Mentored
Room 114 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
10:45 – 11:00 A.M. Title: Particle Size and Phase Composition Analysis of a Titania-Based Vanadia Catalyst	William Ryan Jones	Governor's School for Science & Math
11:00 - 11:15 A.M. Title: The Development of a Novel Polymer for Continuous Glucose Sensing	Rebecca Peltzman	Governor's School for Science & Math
11:15-11:30 A.M. Title: Fabrication of Biological Microsphere Using Single Nozzle Jetting	June-Soo Lee	Governor's School for Science & Math
11:30-11:45 A.M. Title: Classification and Photophysical Characterization of <i>Trans</i> -[Cr(N ₄)(Cn) ₂] ⁺ Compounds for use in Energy Transfer Experiments	Nicholas Bishop	Governor's School for Science & Math

**Consumer Affairs: Non-Mentored
Room 116 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:45-9:00 A.M.	Fripp Prioleau & Renae Gray	Heathwood Hall Episcopal School
Title: The Effect of Chemicals Leached From Polycarbonate Water Bottles when Exposed to Altered Temperature of Water on the Mortality of <i>Daphnia magna</i>		
9:00 – 9:15 A. M.	Casey Gary	Governor's School for Science and Math
Title: The Effect of Quick Freeze-Thaw Cycles on the Growth of <i>Escherichia coli</i> on Ready-To-Eat Turkey Bologna		
9:15 – 9:30 A. M	Saeed Siddiqi	Spring Valley High School
Title: The Effect of off!® and Cutter's insect Repellent™ on the Flammability of Cotton and Nomex™ Fabric.		
9:30 – 9:45 A.M.	Stephanie Ackerson	Spring Valley High School
Title: The Effect of Washing Cotton Fabric Treated with a Borax Based Flame Retardant on the Combustion Time		
9:45 – 10:00 A.M.	Evie Cooke & Elizabeth Fonger	Heathwood Hall Episcopal School
Title: Does Price have any Effect on the Wearability of Lipsticks?		
10:00 – 10:15 A.M.	BREAK	
10:15 – 10:30 A.M	Brooke Grice & Elise Mckelvey	Heathwood Hall Episcopal School
Title: The Relationship between the Price of Sunscreen and Absorption of UVA and UVB Rays		
10:30 – 10:45 A.M.	Charlotte Jones & Charlotte Hanchard	Heathwood Hall Episcopal School
Title: The Effect of Caffeine on a Person's Heart Rate after Exercise		
10:45 – 11:00 A.M.	Gabe Brandner & Charles Williamson	Heathwood Hall Episcopal School
Title: The Effect of Wood Type Bat on the Exit Velocity and Speed on the Baseball		
11:00 – 11:15A.M.	Akida Lebby & Roberts Smith	Heathwood Hall Episcopal School
Title: The Effect of Time of Release of a Permethrin Fogger on the Death Rate of <i>Drosophila hydei</i>		

11:15 – 11:30 A.M. Kaylyn Sumwalt & Amanda Hoefler Heathwood Hall Episcopal School
Title: The Effect of Fat Levels in Yogurt on the inhibition Growth of *E.coli* as Measured by Zone of inhibition

11:30 – 11:45 .AM. Jasmine Ruiz-Yi Spring Valley High School
Title: Testing of Bottled Water of Yeast for Estrogen

11:45-12:00 PM Anthony Howard & Chris Kohn Dutch Fork High School
Title: Flatline Ankle Brace

Engineering: Non-Mentored Room 121 (Rita Hollings Science Center)

TIME	STUDENT NAME	SCHOOL
8:15-8:30 A.M. Title: Engineering A Hydroelectric Turbine to Harness the Energy of Tidal Change	Reid D'Amico	Hilton Head Preparatory School
8:30 – 8:45 A.M. Title: The Effect of Clear-Polymer Magnifying Bars On the Efficiency of A Solar Panel	Connor Hoffman	Heathwood Hall Episcopal School
8:45 – 9:00 A.M. Title: The Effect of Wood Species On the Mass Loss and Time to Burnout of Wooden Wall Studs	Brady Russo	Spring Valley High School
9:00 – 9:15 A.M. Title: :Energy Harvesting Using Wind to Drive A Piezoelectric Generator	Eric Shine	Spring Valley High School
9:15 – 9:30 A.M. Title: The Effectiveness of A Powered Exoskeleton Arm in Reducing the Heart RateIncrease of Lifting	Michael McDonald	Spring Valley High School
9:30 – 9:45 A.M Title: The Effect of Voltage On the Formation On the Effect of Amorphous Carbon Films Deposited By Electrolysis of Methanol	Jonathan Grimes	Spring Valley High School
9:45 – 10:00 A.M. Title: A Composite Sweat Band inside a Football Helmet to Prevent Sweating in the Eyes	Jurell E. Flippen	Dutch Fork High School
10:00 – 10:15 A.M. Title: Analysis of the Effects on Net Fusion Efficiency of integrating Central Hydrogen Ionizers in A thermonuclear Fusion Reactor	Ben Bartlett	Lexington High School
10:15- 10:30 AM - BREAK		

**Engineering: Mentored
Room 121(Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
10:30 – 10:45 A.M Title: The Effect of Pt, Ptir, and Ptru Catalysts with Nb-Doped Tio₂ and Tio₂ Supports on the Electrolysis of Water	Jake Farell	Spring Valley High School
10:45 – 11:00 A.M. Title: Fabrication of Air Bridge Structures on Silicon Carbide (Sic)	David Sung	Governor's School for Science and Math
11:00-11:15 A.M. Title: Identification of Natural Frequencies and Mode Shapes of A Steel Beam	Winston Sumerel	Governor's School for Science and Math
11:15 – 1:30 A.M. Title: Creating A Hemocompatible Small-Diameter Vascular Graft	Ali Serpe	Governor's School for Science and Math
11:30 AM – 11:45 A.M. Title: Identifying thermal Degradation in Apache Ah-64 Gearbox Grease	Philip Park	Governor's School for Science and Math
11:45 – 12:00 P.M. Title: Redicting Travel Times for the Optimization of Plug-In Hybrid Vehicles using Vehicle-Generated Microscopic Traffic Data	Jassiem Moore	Governor's School for Science and Math
12:00 – 12:15 P.M. Title: Fabrication of Biological Microsphere Using Single Nozzle Jetting	Somin Lee	Governor's School for Science and Math
12:15-1:15 LUNCH		
1:15 -1:30 P.M. Title: Examining the Dielectric Constant of Alxny	Cassidy Jenks	Governor's School for Science and Math
1:30-1:45 P.M . Title: Sodium Borohydride Hydrolysis: Kinetic Studies in Concentrated Solutions	Lauryn Jamison	Governor's School for Science and Math
1:45-2:00 P.M.. Title: The Synthesis of indium Nitride Nanowires using a Chemical Vapor Deposition System	Nathaniel Dickson	Governor's School for Science and Math
2:00-2:15 P.M. Title: Calculating Cellular Density of the Temporomandibular Joint Disc: Implications For Understanding Tissue Nutrition and Tissue Regeneration	James Ward Weller III	Governor's School for Science and Math
2:15-2:30 P.M. Title: Change in Viscosity of Gearbox Grease Over Time	Aliceann Elizabeth Wachter	Governor's School for Science and Math

**Environmental Science: Non-Mentored
Room 123 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:15 – 8:30 A.M. Title: Relationship Between El Nino and La Nina Classification and their Storm Development in the Atlantic Basin	Trevor Prioleau	Timberland High School
8:30-8:45 A.M. Title: Using <i>Steinernema</i> and <i>Eisenia fetida</i> to Reduce the Heavy Metals in industrial Sludge	Brenden Britton	Timberland High School
8:45 – 9:00 A.M. Title: Particulates, Gases, and Heavy Metals Found in Various Treated Woods and “Green” Firelogs	William H. Broome	Timberland High School
9:00 – 9:15 A.M. Title: A Study of the invertebrates Living On <i>Lemon bacopa</i> , <i>Zostera marina</i> and <i>Cabomba caroliniana</i> in Lake Moultrie	Daniel Flagler	Timberland High School
9:15 – 9:30 A.M. Title: The Effect of Biomass Type On Hydrothermally Carbonized Biochar As A Soil Supplement and Energy Source	Afia Khan	Spring Valley High School
9:30 – 9:45 A.M. Title: The Effect of Dried and Crushed; Lemon and Grape Fruit Peels on Filtration of Synthetic Dye	Stella Kim	Spring Valley High School
9:45 – 10:00 A.M. Title: The Effect of Mathematical Location on the Optimal Tilt Angle and Orientation of a Solar Panel	Abhinav Gianey	Spring Valley High School
10:00 – 10:15 A.M.	BREAK	
10:15 – 10:30 A.M. Title: The Effect of 3-5mm Silica Aerogel on the Amount of Exxon Unleaded Gasoline, 20w-50 Motor Oil, 5w-30 Motor Oil Absorbed	Patrick Johnson	Spring Valley High School
10:30 – 10:45 A.M. Title: The Effect of Location On the Ability of Bacteria to Grow in the Congaree River	Tyler Pixley	Spring Valley High School
10:45 – 11:00 A.M. Title: The Effects of An Organic Flame Retardant: inspecta-Sheild® Plus On Mutation Rates in <i>Drosophila melanogaster</i>	Braden D. Payne	Spring Valley High School

11:00-11:15 A.M. Hitomi Saito Spring Valley High School
Title: The effect of natural organic substances on the absorbance of glyphosate based herbicide

11:15-11:30 A.M. Michael Hobensack Spring Valley High School
Title: The Effect of Tire Age on the Concentrations of Zinc and Arsenic in Water Leacate

11:30-11:45 A.M. Thomas S. Davant VII Heathwood Hall Episcopal School
Title: The Effects of Conventional Pesticides, Biopesticides, and Biological Control on *Drosophila melanogaster*

11:45-12:00 P.M. Thaddeus Moore & Ian Buckley Heathwood Hall Episcopal School
Title: The Effects of Elevation Changes on Carbon Dioxide Levels in A Mountain Environment and their Comparison to Global Carbon Dioxide Levels

12:00-12:15 P.M. Leigh Yarborough Heathwood Hall Episcopal School
Title: A Deeper Look into the Mineral Composition of South Carolina Spring Water: A Study of the Relationship Between the Ratio of Ca:Mg Ions in South Carolina Spring Water and Its Underlain Lithology

12:15-1:15 P.M. Lunch

1:15 – 1:30 P.M Charles Urconis Dutch Fork High School
Title: Comparative Uptake of Phosphorous and Nitrogen by Three Aquatic Plants.

1:30 – 1:45 P.M. Meghan Matlack Dutch Fork High School
Title: Affect of Different Molarities on Different Soils

1:45 – 2:00 P.M Kailey Porter Dutch Fork High School
Title: The interactions Between Hurricane induced Storm Surges on Social Vulnerability Along South Carolina's Coastal Communities

**Environmental Science: Mentored
Room 344 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
11:15 - 11:30 Title: The Effects of Fire on the Okefenokee Swamp-Marsh Complex and Its Relationship to Global Warming and Carbon Sinks	Lydia Lenora Stiffler	Governor's School for Science and Math
11:30-11:45 Title: The Effects of Historical Land Use on Bacterial and Fish Communities in Rural Piedmont Streams of South Carolina	James Evan Musselwhite	Governor's School For Science and Math
11:45-12:00 P.M. Title: The Role of toxins, Specifically that of Lead and Mercury, in the inducement of Alzheimer's Disease	Millie Howard Griffin	Governor's School for Science and Math
12:00-12:15 P.M. Title: Investigating the Chemical Legacy of Historical Cotton Farming on Aquatic Health in Upstate South Carolina Watersheds	Esmeralda Flores Marcial	Governor's School for Science and Math
12:15-1:15	Lunch	
1:15-1:30 P.M. Title: Degrading Tce By Enhancing Aerobic Co-Metabolism in Oligotrophic Groundwater Systems using Humic Substances	Emmie Daly	Governor's School for Science and Math
1:30-1:45 Title: Correlation Between Lowest Barometric Reading and Time of Recovery to Normal Barometric Reading	David Metz	Dutch Fork High School
1:45-2:00 Title: Soil Moisture and Nutrient Content Analysis On the Edges and interiors of Mainland Sites and Islands At Lake Richard B. Russell	Alexis Rankin Carr	Governor's School for Science and Math
2:00-2:15 Title: Correlation Between Urbanization and Grain Size Distribution in Urban and Rural Streams of the Enoree and Saluda River Basins in South Carolina	Nathanael D. W. Biester	Governor's School for Science and Mathematics
2:15-2:30 Title: The Effects of Wildfire On Peat From the Minnie's Lake in the Okefenokee Swamp-Marsh Complex	Shane Farmer	Governor's School for Science and Math

**Math & Computer Science: Non-Mentored
Room 126 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
11:15-11:30 A.M. Title: A Comparison Between the 32-Bit and 64-Bit Versions of Windows 7 For Processing Speed	William Fishburne	Spring Valley High School

**Math & Computer Science: Mentored
Room 126 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
11:30-11:45 A.M. Title: Simulation of Ultrasound Imaging Using C# and the Xna Framework	Dominic Ranz Ebarle Errazo	Governor's School for Science and Math
11:45-12:00 P.M. Title: The Impact of Jitter on Live Streaming Video	Matthew Burrows	Governor's School for Science and Math
12:00-12:15 P.M. Title: Developing A Control System With the Wii Remote and Motionplus for use in A Medical Simulation	Euan Kemp	Governor's School for Science and Math

**Microbiology: Non- mentored
Room 112 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:30-8:45 A.M. Title: The Effect of Ultra Violet Light on Bacteria on Money	Shy-da Bradley	Timberland High School
8:45-9:00 A.M. Title: The Effects of Hand Soap Verses Hand Sanitizers on Killing <i>Escherichia coli-K12</i>	Megan Citrano	Timberland High School
9:00 – 9:15 A.M. Title: The Effect of <i>Pseudomonas putida</i> on Acetylsalicylic Acid in Aqueous Solutions	Feifei Deng	Spring Valley High School

9:15 – 9:30 A.M. Catherine Demmerle & Grace Smith Heathwood Hall Episcopal School
Title: The Effect of *Serratia marcesens* on Different Types of Water

9:30 – 9:45 A.M. Frederic S. Powers Heathwood Hall Episcopal School
Title: The Effectiveness at Preventing the Growth of *Staphylococcus epidermidis* by topical Treatments as Compared to Copper

9:45 – 10:00 A.M. BREAK

Microbiology: Mentored Room 112 (Rita Hollings Science Center)

TIME	STUDENT NAME	SCHOOL
10:00 – 10:15 A.M.	Ayush Kumar	Governor's School for Science and Math
Title: Photocatalytically Activated Titanium Dioxide Nanoparticles used to Reduce the Growth of <i>Escherichia coli</i> B		
10:15 – 10:30 A.M.	Matthew Lee	Governor's School for Science and Math
Title; the Effects of Different Photocatalytically Activated Titanium Dioxide Nanoparticles on <i>Escherichia Coli</i> B		
10:30 – 10:45 A.M.	Alice Chang	Governor's School for Science and Math
Title: Microtubule Modifications in Filamentous Fungus, <i>Aspergillus nidulans</i>		
10:45-11:00 A.M.	Victor Roosevelt Brown	Governor's School for Science and Math
Title: Vitamin D as a Suppressor of Microbial Activation		
11:00 – 11:15 A.M.	Rowan Armstrong	Governor's School for Science and Math
Title; Social Behavior and Development of the Olfactory System in Nrcam Mice		
11:15 – 11:30 P.M.	Ramiz Nayyer Hamid	Governor's School for Science and Math
Title: Gilt Regulates Cytokine Gene Expression in Prostate Cancer Cells		
11:30-11:45	David Halligan	Governor's School for Science and Math
Title: Developing an Antimicrobial Peptide for Catheter Application using <i>Cupriavidus srnl</i>		
11:45- 12:00	David T. Zhang	Academic Magnet High School
Title: Functional Characterization of B1 B Cells		

**Physics: Non-Mentored
Room 126 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:15-8:30 A.M. Title: Does Light or Heat Attract Night insects	Marquell McFadden	Timberland High School
8:30 – 8:45 A.M. Title: The Effect of increasing Pressure on the Diameter of A Baseball.	Derel Kaczmarski	Heathwood Hall Episcopal School
8:45 – 9:00 A.M. Title: Analysis of Film and Computed Radiography Data Reproducibility when Plotting a Characteristic Curve.	Ellis M. Sojourner	Heathwood Hall Episcopal School
9:00 – 9:15 A.M. Title: The Effect of Fastballs, Change-Ups, Dropballs, Screwballs, Curveballs, and Riseballs on Batted Ball Distance	Malyn V. Pope	Spring Valley High School
9:15 – 9:30 A.M. Title: The Effect of Pellet Weight and Barrel Length on Accuracy of an Airsoft Gun	Jaron L. Pettis	Spring Valley High School
9:30 – 9:45 A.M.	BREAK	
9:45 – 10:00 A.M. Title: An Analysis of the Horizontal Velocity and Vertical Acceleration at the Bottom of the First Hill of the Afterburn Roller Coaster using Mathematical Modeling and Video Analysis Methods	Mary Grace Foster & Mimi Slade	Heathwood Hall Episcopal School
10:00 – 10:15 A.M. Title: Does the Height of the Tee Affect the Distance and Angle of the Golf Ball as it Flies	Allison C. Jones & Christina L. Miller	Heathwood Hall Episcopal School
10:15 – 10:30 A.M. Title: Shakable Cell Phone Chargers	Sahirah Goodwin	Dutch Fork High School

**Physics: Mentored
Room 126 (Rita Hollings Science Center)**

10:30 – 10:45 A.M. Title: Measurement of the Neutral Rho Meson in Coherent Processes	Andrew Svenson	Governor's School for Science and Math
10:45 – 11:00 A.M. Title: Measuring Cp-Violation in the Decay of the D Meson	Reid Harris	Governor's School for Science and Math

**Physiology & Health: Non-Mentored
Room 317 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:45 – 9:00 A.M. Title: Functional Mri Study of Brain Activation During the Reading of Music	C. Borelli, C. Zhu, & T. Ochsner	Hilton Head Preparatory School
9:00 – 9:15 A.M. Title: The Effectiveness of Adding a Photosensitizer to the Photodynamic Treatment of infected tooth Roots and Dental Implants under Anaerobic Conditions	Mark & Adam Oppenheimer	Hilton Head Preparatory School
9:15 – 9:30 A.M. Title: The Littlest Loser (The Effects of Diluted Apple Cider Vinegar on Weight Maintenance in Feeder Mice)	Clara Chalk Hilton	Head Hiton Preparatory School
9:30 – 9:45 A.M. Title: The Effect of <i>Bifidobacterium longum</i> on the Absorption of Lactose in Whole Milk, Buttermilk, 2% Milk, and Skim Milk	Leslie Snider	Spring Valley High School
9:45 – 10:00 A.M. Title: The Effects of 0 Milligrams, 20 Milligrams, and 80 Milligrams of Caffeine on Reaction Time	Maddie S. Norris & Helen B. Clay	Heathwood Hall Episcopal School
10:00 – 10:15 A.M. Title: the Effect of Caffeine on Academic Perfomance of Males and Females	Jennifer L. Flanigan	Spring Valley High School
10:15 – 10:30 A.M. Title: The Effect of Wii™ Tennis Vs. Real Tennis on Heart Rate and Breathing Rate	Sarah Jackson Smith & Danielle Zurcher	Heathwood Hall Episcopal School
10:30 – 10:45 A.M.	BREAK	
10:45 – 11:00 A.M. Title: The Effect of Holistic Treatments in Comparison to Medication as Determined By Survey and Meta Data Analysis	Ryan C. Beasley	Spring Valley High School

11:00 – 11:15 A.M. Sarah Beasley Spring Valley High School
Title: The Effect of andante and Allegro On Jogging Pace

11:15 – 11:30 A.M. Lunden T. Smith Spring Valley High School
Title: The Correlation Between an Athlete's Maximal Squat and Vertical Jump Height

11:30-11:45 A.M. Lauren M. Roth Spring Valley High School
Title: Effects of Biomechanics, Plyometrics, and Strength Training On Knee injury Risk Prevention in Female Athletes

11:45-12:00 P.M. Alice Kim Le Spring Valley High School
Title: The Effect of Differing Application Times of Muscle Relief Cream, Massage therapy, or Ice therapy to Prevent Delayed Onset Muscle Soreness

12:00-12:15 P.M. Hunter Hale Spring Valley High School
Title: The Effect of Low-Dose Acetylsalicylic Acid (C₉H₈O₄) on the Heart Rate and Mortality Rate in *Daphnia magna*

12-15-1:15 - LUNCH

1:15 – 1:30 P.M. Jessika Banks Spring Valley High School
Title: The Effect of Hydrogen Peroxide Concentration of 2, 6, and 10% in Combination with Exposure to Noncoherent Blue Light on the inhibition of *Streptococcus mutans* Biofilms on in Vitro Adult Teeth

1:30-1:45 P.M. Ashley-Shasta Dessalines Spring Valley High School
The Sleep Habits of People without Sleep Deprivation and People with insomnia

1:45-2:00 P.M. Seema Harpalani Dutch Fork High School
Title: Pollen Food Syndrome: Comparison of Antibody Reaction to Protein Profilin in Pollen and Specific Foods.

2:00-2:15 P.M. Angelica Blalock & Madison Wactor Heathwood Hall Episcopal School
Title: The Effect of Foot Type on Weight Distribution while "En Pointe"

2:15-2:30 Kristen Rivers Dutch Fork High School
Title: Diet and Athletic Performance in Adolescents

**Physiology & Health: Mentored
Room 106 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
9:00-9:15 A.M. Title: The Effect of Fli-1 Transcription Factor On Lupus Nephritis	William Zhang	Academic Magnet High School
9:15-9:30 A.M. Title: Histaminergic Receptor Regulation of Serotonin Transporters	Breelyn Miles	Governor's School For Science and Math
9:30-9:45 A.M. Title: The Effect of Capsaicin on the Prevention and Degradation of 1-40 Amyloid B Fibrils	Mason Thornley	Spring Valley High School
9:45-10:00 A.M. Title: The Effects of the Estrous Cycle on induced Nociception	Kayla Bingham	Governor's School For Science and Math
10:00-10:15 A.M. Title: Cytokine Regulation of Hematopoietic Stem Cell-Derived Fibroblast Differentiation	Christopher Avins	Governor's School For Science and Math
10:15-10:30 A.M.	BREAK	
10:30-10:45 A.M. Title: The Effect of Cancer Cachexia on the Skeletal Muscle Igf-1/Mtor Signaling Pathway	Alexander Hesham Kabil	Governor's School For Science and Math
10:45-11:00 A.M. Title: The Effect of Flouropyrimidines, Fdurd and 5-Fu on the Cell Sensitivity of Cell Line Chlts-(Pjz205) Thymidylate Synthesis inhibition using Chemical Reagents Bso and Mntbap	Jai Mcquilla	Spring Valley High School
11:00-11:15 A.M. Title: The Enhancement of Apoptosis in Human Malignant Neuroblastoma Imr-32 Cells after Treatment With 4-(N-Hydroxyphenyl) Retinamide and Epigallocatechin-3gallate.	Mehrab Khandkar	Spring Valley High School
11:15-11:30 A.M. Title: The Role of Sex Hormones on Endothelin-1-Induced Nociception in Early Development	Stephanie Choe	Governor's School For Science and Math

**Psychology & Sociology: Non-Mentored
Room 239 (Rita Hollings Science Center)**

TIME	STUDENT NAME	SCHOOL
8:30- 8:45 A.M. Title: Human Reaction to Media Broadcasts of Approaching Hurricanes	Jessica Thompson	Timberland High School
8:45 – 9:00 A.M. Title: The Effect of Texting and Dui Simulation on Crash Behavior	andrew O. Wood & William S. Norris	Heathwood Hall Episcopal School
9:00 – 9:15 A.M. Title: The Effect of Pre-Assessment Socialization on Assessment Performance	Naomi E. Nudelman	Spring Valley High School
9:15 – 9:30 A.M. Title: A Correlation Study of Word Association and Personality Type	Sarah S. John	Spring Valley High School
9:30 – 9:45 A.M. Title: The Correlation Between Positive Thoughts and Faster Finishing Times in High School Level Cross-Country Runners	Brittany R. Beasley	Spring Valley High School
9:45 – 10:00 A.M. Title: The Motivation of Special Education Students to Exercise With and Without the Nintendo Wii	Reilly J. Brown	Spring Valley High School
10:00 – 10:15 A.M.	BREAK	
10:15 – 10:30 A.M. Title: The Effect of Types of Pedagogy and Social Desirability of Students on Cheating	John Tison	Spring Valley High School
10:30 – 10:45 A.M. Title: How Learning Style Affects the Efficacy of Various Stress Relief Methods	Nicolette L. Hook	Spring Valley High School
10:45 – 11:00 A.M. Title: Adolescents from Morning to Afternoon	Virginia H. Skipper	Spring Valley High School
11:00- 11:15 A.M. Title: The Effect of Color Preference on individual Productivity	Jamora Hamilton	Spring Valley High School
11:15-11:30 A.M. Title: The Effect of Humidity On the Frequency of Behavioral infractions in High School Students	Paul Han	Spring Valley High School
11:30-11:45 A.M. Title: The Effect of the Face Perceived From the Front End of an Automobile on the Appeal of An Automobile to a Potential Buyer	Joseph S. Guy Jr.	Spring Valley High School

11:45-12:00 P.M. Kaity Nisbet Dutch Fork High School
Title; Immediate and Subconscious Response: A Study of Social and Racial Stereotyping

12:00-12:15 P.M. Robert Hofmann Dutch Fork High School
Title; Effects of Aspects of Music on Cognitive Activity

12:15-1:15 LUNCH

1:15-1:30 P.M. Levy Price Dutch Fork High School
Title: How Classroom Behavior is Effected by Different Genres of Music

1:30-1:45 P.M. Margaret C. Carter Spring Valley High School
Title: The Effect of Action Video Games on a Person's Spatial Ability, Reaction Time, and Memory

1:45 – 2:00 P.M. Christopher Metzger & Jannie Adams Heathwood Hall Episcopal School
Title: The Effect of Text Color on the Ability to Recall

**Psychology & Sociology: Mentored
Room 239 (Rita Hollings Science Center)**

TIME STUDENT NAME SCHOOL

2:00 – 2:15 P.M. Spencer Babb Governor's School For Science and Math
Title: Comprehension and Production in Adult Word Learners

2:15 – 2:30 P.M. Anna Capps Governor's School For Science and Math
Title; Fear Conditioning of Neuronal Cell Adhesion Molecule Deficient Mice

**Zoology: Non-Mentored
Room 344 (Rita Hollings Science Center)**

Time	Student Name	School
8:45 – 9:00 A.M. Title: The Effects of Music on the Breeding Habits of <i>Mus musculus</i>	Jennifer L. Dangerfield	Timberland High School
9:00 – 9:15 A.M. Title: The Effect of Ph Changes on the Health of <i>Aiptasia pallida</i>	Megan M. Brovan	Spring Valley High School
9:15 – 9:30 A.M. Title: The Effect of Car and Bike Tire Debris on the Heart Rate and Mortality of <i>Daphnia magna</i>	Kaori Saito	Spring Valley High School
9:30 – 9:45 A.M. Title: The Effect of Formaldehyde Gas Exposure on <i>Drosophila melanogaster</i>	Cate Pollock	Spring Valley High School
9:45-10:00 A.M. Title: the Effect of Predatory and Non-Predatory Stimulus on the Size of <i>Lytechinus variegatus</i> Larvae	Harmony White	Spring Valley High School

**Zoology: Mentored
Room 344 (Rita Hollings Science Center)**

Time	Student Name	School
10:00 – 10:15 A.M. Title: Evaluation of Nesting Activity of the Diamondback Terrapin (<i>Malaclemys terrapin</i>) Population At North inlet, Winyah Bay, South Carolina	Alice Sudlow	Governor's School For Science and Math
10:15 – 10:30 A.M. Title: Horn Size as a Predictor of Dominance in the Madagascar Hissing Cockroach (<i>Gromphadorhina portentosa</i>)	Will Smith	Governor's School For Science and Math
10:30 – 10:45 A.M. Title: Immunocompetence as a Predictor of Dominance in the Madagascar Hissing Cockroach	Kayla Broeker	Governor's School For Science and Math
10:45 – 11:00 A.M. Title: Evaluation of Antibodies For Staining of Motor Neurons in Zebrafish Embryo	Emily Harruff	Governor's School For Science and Math