

North Carolina Student Academy of Science  
High School Winners  
2020

Place	First name	Last name	School	Category	Project title	Co-authors
First	Esha	Shakthy	North Carolina School of Science and Mathematics	Behavioral Science	Behavioral Effects of Capsaicin on Planarians	
Second	Fritz	Ruppert	Brevard High School	Behavioral Science	Evaluation of Light Dependency to Determine Basis of Culex quinquefasciatus Magnetoreception	Jonathan Gibson
Second	Jonathan	Gibson	Brevard Senior High School	Behavioral Science	Evaluation of Light Dependency to Determine Basis of Culex quinquefasciatus	Fritz Ruppert
Third	William	Turner	School of Inquiry and Life Science Asheville	Behavioral Science	The effect of varying music therapy treatments on indicators of stress	
First	Koushik	Sridhar	North Carolina School of Science and Mathematics	Behavioral Science-Adva	Image Predictors of Visual Localization Errors in Natural Scenes	
First	Elise	Poche	Brevard High School	Biological Science	Antimicrobial Activity of Microorganisms Isolated from Western North Carolina	Nicole Vargas Sancho, and Jarek Stewart-Karolewics
First	Jarek	Stewart-Karolewics	Brevard High School	Biological Science	Antimicrobial Activity of Microorganisms Isolated from Western North Carolina	Nicole Vargas Sancho, Elise Poche.
First	Nicole	Vargas Sancho	Brevard High School	Biological Science	Antimicrobial Activity of Microorganisms Isolated from Western North Carolina	Elise Poché and Jarek Stewart-Karolewics
Second	Martina	Banas	Ardrey Kell High School	Biological Science	Running to the Beat	
Third	Esha	Shah	Lake Norman High School	Biological Science	Variability of Testing Protocols and the Impact of Concussions on Student Athletes in Iredell	

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First	Preeti	Nagalamadaka	North Carolina School of Science and Mathematics	Biological Science-Advan	Quorum Quenching: Synergistic Effects of Plant-Derived Compounds on Biofilm Formation	
Second	Kasey	Kiser	North Carolina School of Science and Mathematics		Bacterial inhibition using anti-derived microbes	
Third	Alex	Whang	Chapel Hill High School		Examining the Relationship Between FatmaxHR and Exercise Intensity in Adolescent Males and	Venkata Srikar Kavirayuni, (Vibhav Nandagiri)
Third	Venkata Srikar	Kavirayuni	ABSS Early College at ACC		Examining the Relationship Between FatmaxHR and Exercise Intensity in Adolescent Males and	Alex Whang, (Vibhav Nandagiri)
Honorable	Christine	Mendoza	Myers Park High School		A Comparison of Methods to Combat Catheter-Associated UTIs without Promoting Antibiotic	
First	Benjamin	Caroway	Brevard High School	Biotechnology	The Effectiveness of a 3D Printed Hydrogel Membrane to Sustain Algal Growth	Frank Parsons, Satchel Malo
First	Satchel	Malo	Brevard High School		The Effectiveness of a 3D Printed Hydrogel to Sustain Algal Growth	Frank Parsons, Ben Caroway
First	Frank	Parsons	Brevard High School		The Effectiveness of a 3D Printed Hydrogel Membrane to Sustain Algal Growth	Ben Caroway, Satchel Malo
Second	Saathvik	Boompelli	Jack Britt High School		A Telemetric Gait Analysis Insole and Mobile App to Track Postoperative Fracture	
Third	Jusung	Park	Chapel Hill High School		Differentiating Touch-Induced Vibrations into Categories of Tactile Inputs Using a Piezoelectric	

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First	Sriya	Mantena	North Carolina School of Science and Mathematics	Biotechnology-Advanced	CFD Analysis of Boundary Condition Stability and Hemodynamics in Coarctation of	
Second	Hrishika	Roychoudhury	Ardrey Kell High School	Biotechnology-Advanced	Noninvasive Treatment of Diabetes - An In-Vitro Analysis of Chitosan-Insulin Nanoparticles for Oral	
Third	Prabuddha	Ghosh Dastidar	Marvin Ridge	Biotechnology-Advanced	Pre-mRNA Splicing Inhibition as a Potential Pancreatic Cancer Treatment: An Innovative Approach	
First	Alexis	Turturici	North Carolina School of Science and Mathematics	Chemistry	Modification of Polymeric Carbon Nitride Films for Increased Photoelectric Efficiency	
Second	Vandanaa	Jayaprakash	North Carolina School of Science and Mathematics	Chemistry	Cardamom Extract Inhibits Topoisomerase I Activity	
Third	Ivy	Scott	Brevard High School	Chemistry	Characterization of Pigments Extracted from Southern Appalachian Mushrooms as	(Josie Troyer)
First	Lisa	Zhang	Providence High School	Chemistry-Advanced	Synthesis and Characterization of Si(bzimpy) <sub>2</sub> Analogs for Application in Organic Light Emitting Diodes	
Second	Leah	Zachary	North Carolina School of Science and Mathematics	Chemistry-Advanced	Light Induced Low Temperature Release of Hydrogen From Liquid Organic Hydrogen Carriers	
First	Dev	Chheda	Ardrey Kell High School	Computer Science	iCoPaM: A Novel Machine Learning Based Computational Framework for the Pathway Modeling of	
Second	Isha	Narang	Ardrey Kell High School	Computer Science	Identifying Tablets using Neural Networks	NA

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Third	Kathryn	Hart	Brevard High School	Computer Science	Developing Computational Models Using Deep Learning Software To Identify Individuals Within The	Maria(Andy) Anderson Mckibbon
Third	Andy	Mckibbon	Brevard High School	Computer Science	Developing Computational Models Using Deep Learning Software To Identify Individuals Within the	Kathryn Hart
First	Graham	Green	Brevard High School	Earth and Space	An Evaluation of Utilizing Nitrifying Bacteria in Conjunction with Martian Resources to Enable Hydroponic	Isaiah Lefler
First	Isaiah	Lefler	Brevard High School	Earth and Space	An Evaluation of Utilizing Nitrifying Bacteria in Conjunction with Martian Resources to Enable Hydroponic	Graham Green
Second	Brook	Chevront	Avery County High School	Earth and Space	Predicting Formation for Galaxies under the Redshift of 1 Using the SDSS Imaging System	
First	Graham	Shunk	North Carolina School of Science and Mathematics	Earth and Space-Advanced	The Effects of C. Sphaerospermum on Mitigating Levels of Ionizing Radiation aboard the International	
First	Aniketh	Kolla	Green Level High School	Engineering and Technology	An Automated, Scalable, and Cost-Effective Solution for Diagnosis of Malaria Using Deep Learning	
Second	Ishaan	Maitra	North Carolina School of Science and Mathematics	Engineering and Technology	ROPLight: A Platform for Early Detection of Retinopathy of Prematurity and Plus Disease	
Third	Akshra	Paimagam	North Carolina School of Science and Mathematics	Engineering and Technology	Improving Tumor Detection Accuracy in Mammograms of Dense Tissue Breast Cancer	
Honorable	Srikar	Pasumarthy	Marvin Ridge High School	Engineering and Technology	Exploring the Oceans: A Novel Method of Discovering New Aquatic Species	(Carson Kanipe)

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First	Dheepthi	Mohanraj	Ardrey Kell High School	Engineering and Technology	AIConvPath: A Deep Learning Approach to the Automatic Classification of Histopathological	
Second	Ana	Huesa	O'Neal School	Engineering and Technology	Improving Low Cost Harmonic Radar to Track European Honeybees	
Third	Jennifer	Ye	North Carolina School of Science and Mathematics	Engineering and Technology	Acoustic Hydrodynamic Tweezers (AHT) via Spatial Superposition of Vortexes	(Haodong Zhu, Steven Zhang)
First	Mason	Sufnarski	Marvin Ridge High School	Environmental Science	A Demand for Sand: The Effectiveness of a Plastic Substitute in Concrete	
Second	Dalia	Segal-Miller	North Carolina School of Science and Mathematics	Environmental Science	Consequences of Heat Stress and Zinc Oxide Nanoparticle Exposure on Growth and Development of	
First	Jack	Suggs	Raleigh Charter High School	Environmental Science-A	Impacts of Flooding on Wilson Creek at the Edgemont Fishing Club in the Southern Appalachians	Emma Johnson, and (Nikhilganeesh Varadarajan)
First	Emma	Johnson	John T. Hoggard High School	Environmental Science-A	Impacts of Flooding on Wilson Creek at the Edgemont Fishing Club in the Southern Appalachians	Jack Suggs, (Nikhilganeesh Varadarajan)
Second	Karthik	Nemani	Cox Mill High School	Environmental Science-A	Functions of phenolic compounds within common natural spices in permeating cells of kanamycin and	
Third	Aishwarya	Balaji	Enloe Magnet High School	Environmental Science-A	Adsorption of Acetic Acid with Commercial Carbon	
Honorable	Graham	Hairston	Durham Academy	Environmental Science-A	The Impact of Severe Weather Events on American Perception of Climate Change	Will Rhodarmer

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Honorable	Will	Rhodarmer	Pisgah High School	Environmental Science-A	The Impact of Severe Weather Events on American Perception of Climate Change	Graham Hairston
First	Stepan	Malkov	North Carolina School of Science and Mathematics	Mathematics	Canonical Principal Component Analysis of Stock Returns For Robust Risk Factor Identification	
Second	Archita	Khaire	Providence High School	Mathematics	Archita Khaire - Koch Curve - Mathematical Relation of Hausdorff Measure to Box Dimensions and	
First	Ijay	Narang	Ardrey Kell High School	Mathematics-Advanced	Forecasting Stock Close Values and Generating Investment Strategies with Differential	
First	Joshua	Kupras	Brevard High School	Physics	Evaluating the Efficiency of Using Martian Materials as Fuel to Reach Martian Orbit	(Robert Heath Sanders)