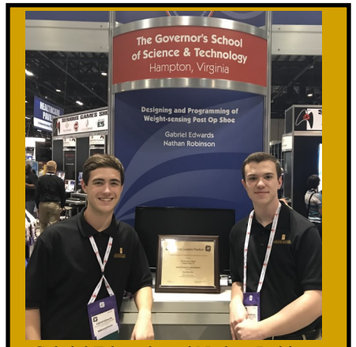
INTERSERVICE/INDUSTRY TRAINING, SIMULATION AND EDUCATION CONFERENCE (I/ITSEC) 2017 FUTURE LEADERS PAVILION

New Horizons Governor's School for Science & Technology (GSST) students, Gabriel Edwards and Nathan Robinson, both from Kecoughtan High School, Hampton City Public Schools were one of six schools in the county to compete in the 2017 Interservice/Industry Training, Simulation and Education Conference (I/ITSEC).

I/ITSEC is the world's largest modeling, simulation, and training conference held in Orlando, Florida. The GSST students were accompanied by Mr. Jonathan Torch, GSST Computational Science instructor. The student's project titled "Designing and Programming of a Weight-sensing Post-op Shoe" won first place within the Future Leaders Competition.

In order to participate, Gabriel and Nathan had to complete a modeling/simulation project and a scientific paper. In addition, a presentation of their design and findings were presented before a panel of judges at I/ITSEC. Gabriel and Nathan were able to combine their knowledge of engineering and computer science to create a sophisticated prototype that earned them a first place award!

The I/ITSEC conference provided Nathan and Gabriel a first-hand experience of how interservice and industry members come together to share knowledge and do business.



Gabriel Edwards and Nathan Robinson
Kecoughtan HS, Hampton CPS

First Place

Director Highlight

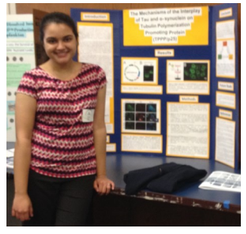
Governor's School Director, Vikki Wismer, participated in the annual summit to identify solutions to close the excellence gap; the troubling disparity in academic performance between lower income and higher income students at advanced levels. Mrs. Wismer was personally invited by the Cooke Foundation to collaborate with more than 100 other principals, as well as, other school leaders and experts nationwide to learn about cutting-edge research and share best practices for supporting high-achieving, low-income students.

US PHYSICS OLYMPIAD TEAM

Each year, the American Association of Physics Teachers (AAPT) and the American Institute of Physics (AIP) sponsor a competition for high school students to represent the United States at the International Physics Olympiad Competition. The mission of the U.S. Physics Team Program is to promote and demonstrate academic excellence through preparation for and participation in the International Physics Olympiad. In January of 2018 over 5000 students nationwide took the FNet test to qualify for the USAPhO exam. The top 300 students are invited to take the USAPHO qualifying exams. This year two GSST students qualified.

SCIENCE & ENGINEERING FAIR

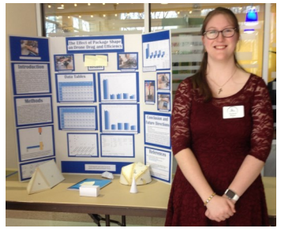
The following students represented GSST at the Virginia State Science Fair in Roanoke.



Anjali Patel– Windsor HS

Interplay of Tau and alpha-Synuclein on TPPP/p25

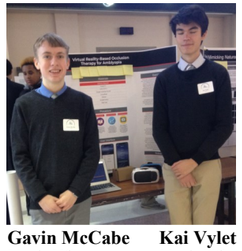
3rd Place Award – Cellular and Molecular Biology



Elizabeth Hinton York HS

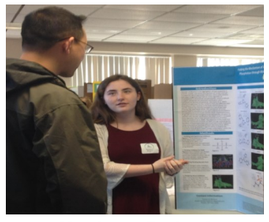
The Effect of Package Shape on Drone Drag and Efficiency

US Air Force Excellence in Engineering Award



Gavin McCabe York HS **Kai Vylet** York HS

Virtual Reality-Based Occlusion Therapy for Amblyopia



Katelynne Berland
Grafton HS

Probing the Mechanism of action of Tissue Non-specific Alkaline Phosphatase through Molecular Docking of Novel Inhibitors

For more information on the Governor's School for Science and Technology call 757-766-1100 or visit our website www.nhrec.org/gsst/

THE GOVERNOR'S SCHOOL for SCIENCE AND TECHNOLOGY

New Horizons REGIONAL EDUCATION CENTERS

School Year 2017- 2018

Newsletter

Virginia Living's editorial team has once again named the Governor's School for Science and Technology to its **Top High Schools and Colleges 2018** list. *Virginia Living*'s Top High Schools and Colleges 2018 list recognizes schools for excellence and innovation in five categories: Arts and Humanities; Science, Math and Technology; Performing Arts; Heath and Medicine; and Capital Improvements.

Virginia Junior Science & Humanities Symposium

The Junior Science and Humanities Symposia (JSHS) Program is a tri-service – U.S. Army, Navy, and Air Force – sponsored STEM competition which promotes original research and experimentation in the sciences, technology, engineering, and mathematics (STEM) at the high school level and publicly recognizes students for outstanding achievement. By connecting talented students, their teachers, and research professionals at affiliated symposia and by rewarding research excellence, JSHS aims to widen the pool of trained talent prepared to conduct research and development vital to our nation

$8.4 million in scholarships

GSST Class of 2018 was awarded 8.4 million in scholarships from numerous top tier colleges and universities!

GSST Students Semi-Finalist Conrad Innovation Challenge

GSST students Jim Furches (York HS), Cale Overstreet (York HS), and Steven Peng (Grafton HS) are the members of Team Relatively Relativistic, sponsored by GSST Physics instructor, Dr. Rhett Woo. They are participating in the Conrad Innovation Challenge, which is a national competition seeking innovative products that would benefit society in five different categories. Teams from all over the country submitted product ideas using a one minute video in the following categories: Aerospace and Aviation, Cyber-Technology and Security, Energy and Environment, Health and Nutrition, and Smoke-Free World.

Their submission was an Electrohydrodynamic Thruster (or EHD Thruster for short), which works by ionizing air around a corona wire via high voltage, which then expands outwards towards an oppositely charged collector electrode, creating an air flow.

They have been selected as Semi-Finalist, and are now in the process of creating a business plan and a five minute video describing their EHD Thruster. If they are selected as one of the five finalists in the Aerospace & Aviation category, they will present their project at the Conrad Innovation Summit to a panel of scientists and business leaders at the Kennedy Space Center Visitor Complex in Florida.

CNU Math Contest

Boheng Mu-Warhill HS: Highest individual score for a Junior

Kai Vylet-York HS: Highest individual score from GSST

Emery Shelly-Lafayette HS: Honorable mention

CNU High School Math Contest is an annual mathematics competition for high school students in southeastern Virginia. The goal of the competition is to cultivate interest in good mathematics. This was a record-breaking competition, with 137 students from schools across eastern Virginia participating.

National Academic Quiz

Three teams of students from GSST travelled to Mountain Vista Governor's School on Saturday, January 27th to participate in our first National Academic Quiz Tournament. Dr. Woo and his students had a great time and the students represented GSST well by placing two teams in the top 10 in our very first tournament.

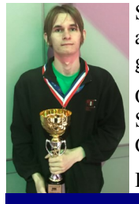
ODU GREAT COMPUTER CHALLENGE

On Saturday, March 10th eighteen students within the Computational Science Strand at the Governor's School competed in the 33rd Annual Great Computer Challenge (GCC) at Old Dominion University. This event challenges groups of middle and high school students in a variety of computer competitions. GCC allows students to gain valuable experience in team collaboration, critical thinking, and problem solving.

This year the Governor's School for Science and Technology brought home three awards, each in a different category. Macey Cohn (Gloucester HS) and Alex Payne (Kecoughtan HS) placed third in Music Composition. Hailey Thomas (Lafayetter HS), Trevor Simmons (Jamestown HS), Jacob Sandling (Jamestown HS), and Mikhail Pozdniakov (Warhill HS) placed third in Scientific/Non-Business Programming. Huyen Nguyen (Kecoughtan HS), Michael Sutton (Hampton HS), Brian Chou (Poquoson HS), Bradley Herron (Poquoson HS), and Noah Wiggins (Poquoson HS) placed first in Desktop Presentations.

CODE QUEST

Code Quest is a high school international programming competition that takes place once a year. Lockheed Martin's computer programmers and engineers sponsor this competition by creating 15-20 problems and hosting this event at many of its locations.



Students must use their problem solving and programming skills within a 2.5 hour time frame to get as many questions correct as possible! This annual event is used to challenge and inspire our future generation of engineers and programmers!

On Saturday, April 21st GSST juniors Byunghyun Yoon (Grafton HS), Wan-Ching Tseng (Woodside HS), Elisabeth Seguin (Grafton HS), and Emery Shelly (Lafayette HS) in the Computational Science strand competed in the 2018 Code Quest Competition. The competition was held in Suffolk, VA at Lockheed Martin's Center for Innovation.

Emery Shelly placed 3rd in the novice category!

JAMES BLAIR QUIZ BOWL

The College of William and Mary Quizbowl team hosts the James Blair Bowl. It is a high school tournament, rated as a Platinum Qualifier event by the Partnership for Academic Competition Excellence (PACE).

The team of Juniors consisted of
Finn Hulse – Jamestown HS
Allen Liu – Kecoughtan HS
Gavin McCabe – York HS
Kai Vylet – York HS
(10th overall High Scorer)
Mia Wright – Kecoughtan HS
They finished fifth overall in the tournament.

Two teams of students participated

The team of Seniors consisted of
James Harrington – Warwick HS
(tied for 7th overall High Scorer)
Stas Kuzmenko – Lafayette HS
Rachel McNamara – Tabb HS
(tied for 7th overall High Scorer)
Jakob Weiss – Lafayette HS (
tied for 9th overall High Scorer)
They finished second overall in the tournament and qualified for the PACE Nationals held in DC.

Discussion with Nobel Prize winner for Physics in 2016

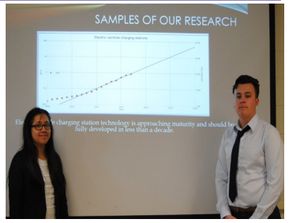
Katherine Perkins (Warwick HS) is currently a senior at The Governor's School. Her mentor at NASA is Dr. Ryan Norman. They will be using models to study how to reduce astronauts' risk of radiation damage when astronauts are in space. This is especially significant as longer deployments are planned.
Dr. Norman introduced Katherine to his colleague Dr. John Mather who was the recipient of the Nobel Prize for Physics in 2006. He was recognized for his research supporting the Big Bang theory of the universe. Katherine had the pleasure of meeting with Dr. Mather for three hours during which they discussed physics and education.

Alumni

Khalil a GSST alumni is now a 1693 scholar attending William & Mary. Recently an article was written about his choice to attend William & Mary, being awarded the 1693 scholarship and contributions he is already making.

Alecia Guishard completed her senior mentorship with Dr. Sebastian Yakisich at Hampton University during the 2016-2017 school year. Alecia wrote an article titled Translational Gap in Ongoing Clinical Trials for Glioma based on her work completed in Dr. Yakisich's lab at Hampton University. The manuscript has been accepted for publication in *Journal of Clinical Neurosciene.*

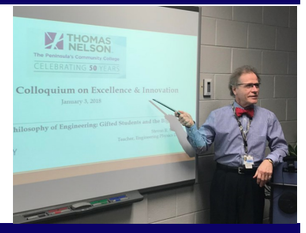
Association of Energy Engineers



Xuan Nguyen (Kecoughtan HS) and Matthew Carter (Gloucester HS) were invited to speak recently before the Association of Energy Engineers (AEE) at their monthly meeting in Williamsburg. As part of Senior mentorship experience, and sponsored by the Center for Entrepreneurial Innovation at Old Dominion University, Xuan and Matt have been performing research forecasting the trajectories of advanced energy efficiency technologies aboard ships for a local company. Researchers with the company who were members of the AEE found the results so intriguing and compelling, they asked the students to present their work at their monthly meeting. The students were guided in their research by their teacher-mentor, Steven R. Walk, whose research career has included the use of quantitative methods to model the growth and diffusion of technology and technological change.

Teacher Highlights

2018 Faculty Colloquium on Excellence & Innovation



Prof. Walk, teacher of Engineering Physics III & IV, recently gave an invited presentation at the 2018 Faculty Colloquium on Excellence & Innovation at Thomas Nelson Community College. Prof. Walk's presentation, "Philosophy of Engineering: Gifted Students and the Big Picture", describes the approach to engineering instruction in the senior year dual enrolled engineering courses in the Engineering Strand at GSST. He shows how the curriculum includes focus on the upper end of the engineering compendium, i.e., research and development, and introduces the concept of the philosophy of engineering in a pedagogical approach appropriate to the career aspirations and cognitive abilities of gifted and highly able students.

GSST Physics Instructor selected to attend 2017 Research Teachers Conference

Dr. Woo was one of 200 chosen nationally to represent Virginia at the 2017 Research Teachers Conference to be held in Washington D. C. The Society for Science & the Public chose teachers to attend this event from October 13 to 15, 2017. During the conference, teachers will have the opportunity to share experiences, tips, and practices together. They will also handle various challenges to better assist students in the independent science research community. This conference is supported by Regeneron with which the teachers will also learn more about the Society and the Regeneron Science Talent Search.