



# VIRGINIA STEAM ACADEMY

Where intellect and innovation converge  
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HAPPY NEW YEAR FROM THE VA STEAM ACADEMY CO-FOUNDERS AND STEERING COMMITTEE

## LETTER FROM THE CO-FOUNDERS

With your support, the VA STEAM Academy is quickly advancing from concept to reality. We fully recognize the Herculean task still before us. Nevertheless, we are confident our champions' investment in time, talent, and treasure will keep us on track to meet our goals on time, on budget, and with quality to exceed expectations. Our mission is clear: to nurture the next generations of creative, ethical, and imaginative STEAM leaders who understand and respect the humanities. Like the North Carolina School of Science and Mathematics (NCSSM), from whom we have been learning since first starting this journey, we will significantly and positively impact the Commonwealth for educational and economic impact. We, too, anticipate 60% of our graduates will go on to pursue a STEAM-related discipline (four times the national average); 60% will choose to live and work in Virginia; and the state will see a significant return on its investment as VA STEAM Academy graduates earn higher than average salaries, start successful businesses, and commit to service as a way of life (for the state of North Carolina's annual \$20 million investment, it now sees an annual \$500 million return) (Karen Dash Consulting, Economic Impact Statement, North Carolina School of Science and Mathematics, 2011).

In this, our launch newsletter, we share some important research on math as the strongest predictor of a nation's economic competitiveness. We also provide updates on the work of our four committees: Teaching and Learning; Buildings, Grounds, and Site Configuration; Human Capital; and Fund Development.

Your support has been critical to our success and will take us across the finish line. We look forward to your feedback and continued engagement.

Warm wishes for a happy new year,  
Caroline and Judy

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Co-founders, Virginia STEAM Academy

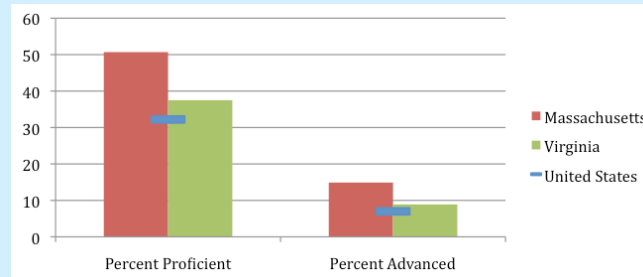
## The Case for Math

Crean Davis, A. (2012, in press for the VA STEAM Academy).

*A look at Virginia's math performance on the 2011 PISA (Peterson et al., 2011)\**

Performance in math skills has been identified as the primary determinant to advancing a nation's economic productivity. Yet as a whole, the United States performs well below many other countries in this content area within the industrialized world.

International achievement data from PISA (2011) showed that Virginia fared well in comparison to the United States in math. Its students outperformed the average U.S. student in math at both the proficient and advanced performance levels. Compared with other states, Virginia ranked 11<sup>th</sup> and 8<sup>th</sup> in terms of proficient and advanced students and was outperformed by states such as Minnesota, Vermont, New Jersey, and Massachusetts (which ranked first at both performance levels).



Overall, the U.S. was significantly outperformed by 22 countries (% proficient) and 25 countries (% advanced) in math. At both proficiency levels, Massachusetts students were significantly outperformed by students in six countries and performed most like students in Canada, Japan, and the Netherlands. Virginia students were significantly outperformed by students in 17 countries and performed most like students in countries such as Czech Republic, France, and Sweden.

Within the U.S., Virginia students are competitive and perform above average. However there is room to grow. A cluster of states outperform the Commonwealth. And given the increasingly global nature of our economy, the international standing of Virginia students is critical to its future. The Commonwealth must prepare to be as economically competitive as possible, both now and in the future. This requires ensuring its students are not only acquiring the right knowledge and skills, but are doing so within a context of high economic relevancy.

*\*Peterson, P.E.; Woessmann, L; Hanushek, E.A.; & Lastra-Anadón, C.X. (August, 2011). Globally challenged: Are U.S. students ready to compete? The latest on each state's international standing in math and reading. Harvard's Program on Education Policy and Governance and Education Next: Taubman Center for State and Local Government and Harvard Kennedy School.*

## Calendar of Events

- January 15** 2<sup>nd</sup> Quarterly Report due to VA Department of Education
- February 7** Luncheon information session hosted by Len Fleisig, partner, Willcox & Savage at their offices
- February 11** Business Leaders' Symposium, co-hosted by Huntington Ingalls Industries and at their facilities

## BUILDINGS, GROUNDS, AND SITE CONFIGURATION

On December 13, 2012, the Fort Monroe Authority (FMA) Board of Trustees voted unanimously to sign a non-binding Memorandum of Understanding with VA STEAM Academy, Inc. The buildings identified and agreed to by VA STEAM in consultation with architect Mike Ross, HBA Architecture and Interior Design, FMA Executive Director Glenn Oder, and Fred Merrill, principal, Sasaki, FMA master site planner represent approximately 300,000 square feet of academic and residential space. The buildings are located primarily in the inner moat, with three buildings in the North Gate area. VA STEAM plans a phased-in renovation and minimal construction approach to correspond with the school's proposed student growth. The FMA Board further established a 30-45 day economic work group and appointed FMA Trustees Mr. George Wallace and Mr. John Lawson. Both



gentlemen have heard presentations on the VA STEAM Academy. Immediate next steps are to secure the environmental studies report, meet with BRAC representatives, and conduct appropriate due diligence to determine hazards

and risk mitigation and develop an informed cost projection. Architect Mike Ross has indicated VA STEAM must begin Phase I of its renovation project by February 1, 2013 if we are to receive our freshman class fall 2014.

## FUND DEVELOPMENT

To date, the VA Department of Education (administrators of the General Assembly planning grant) has dispersed approximately \$60,000. The VA STEAM Academy has matched those resources with \$80,000 in cash and in-kind contributions. In-kind contributions reflect legal (McDermottWard), accounting (Barnes, Brock, Cornwell & Heilman), information technology (Zel Technologies), and architecture and design (HBA Architecture) services.

Efforts continue to raise planning grant and sustainable dollars.

## HUMAN CAPITAL

### *Consortium Leadership*

The VA STEAM Academy will be designed, delivered, monitored and continuously improved upon in partnership with students, parents, public, K-12, higher education, business, scientific research and development, and government representatives. To date, five institutions of higher education have signed partnership agreements with VA STEAM: Virginia Tech, Old Dominion University, Norfolk State University, Virginia Military Institute (Applied Mathematics Division), and the School of Education, College of William and Mary. Memoranda of understanding are in process with several more colleges and universities.

Late November, Thomas Jefferson National Accelerator Facility (JLAB) became the first scientific research and development institution to officially partner with VA STEAM. Virginia Modeling, Analysis and Simulation Center quickly followed. Additional partnership agreements are in process with the scientific R&D community.

On the business side, Newport News Shipbuilding, a division of Huntington Ingalls Industries is reviewing a partnership agreement and will co-sponsor a business leaders' symposium February 11, 2013. North Carolina School of Science and Mathematics (NCSSM) Foundation Board Chair Christy Shaffer and Chancellor Todd Roberts have agreed to give the luncheon address.

See below for list of champions and contacts as of December 14, 2012.

### GOVERNMENT

Governor McDonnell  
Lieutenant Governor Bolling  
Delegate Matthew James, Delegate S. Chris Jones, Senator John Miller, Senator Tommy Norment, Delegate Bob Tata  
Secured \$200,000 planning grant, Virginia General Assembly  
Hampton Roads Caucus, Black Caucus, Education Sub-committee of the Senate Finance Committee, House Education Committee, House Appropriations  
Senator Mark Warner, Congressman Bobby Scott  
Secretary of Education and Deputy Secretary of Technology  
State Superintendent P. Wright and Board President D. Foster  
Hampton Mayor Molly Ward

### BUSINESS AND PHILANTHROPY

TowneBank  
W.M. Jordan  
Zel Technologies  
Old Point Bank  
Bank of the James, Lynchburg  
Huntington Ingalls Industries  
Newport News Shipbuilding  
Wilbanks, Smith & Thomas  
BOSH Global Services  
Judge Richard Bray, CEO, Beazley Foundation  
Microsoft  
ExxonMobil  
Lou and Mary Haddad, Armada Hoffer  
Virginia Peninsula Chamber of Commerce  
Hampton Roads Chamber of Commerce

### PUBLIC, K-12

Hampton City Schools  
Portsmouth Public Schools  
Virginia Beach Public Schools  
Isle of Wight City Schools  
Suffolk Public Schools

### SCIENTIFIC AND RESEARCH COMMUNITY

Signed MOU with Thomas Jefferson National Accelerator Facility  
Signed addendum with Virginia Modeling, Analysis and Simulation Center  
Langley Air Force Base  
NASA Langley  
National Institute of Aerospace  
Virginia Space Grant Consortium  
Hampton Roads, Northern Virginia, Blacksburg, and Region 2000 (Lynchburg) technology councils

### HIGHER EDUCATION

Signed MOU with Virginia Tech  
Signed MOU with Old Dominion University  
Signed MOU with Norfolk State University  
Signed MOU with Virginia Military Institute  
Signed MOU with The School of Education, College of William and Mary  
University of Virginia  
Christopher Newport University  
Tidewater Community College  
University of Maryland-Baltimore County (UMBC)  
Dr. LD Britt, Eastern Virginia Medical School

### OTHERS

Executive Director, Ft. Monroe Authority  
North Carolina School of Science and Mathematics  
Illinois Mathematics and Science Academy  
South Carolina Governor's School for Science and Mathematics  
Center for Excellence in Education  
Center for STEM Education for Girls  
HBA Architecture and Interior Design  
McDermott Ward Attorneys at Law  
Barnes, Brock, Cornwell & Heilman PLC

# MILESTONE



Look for our official web launch in early January, 2013. Zel Technologies has generously provided in-kind IT and web design support that will enable us to activate our website. For now, the site will carry basic information about the Academy, Co-founders and Steering Committee, mission, vision, and values, history and timeline and sub-committee structure. There will be a link for Summer STEAM, our proposed July 7-13, 2013 summer camp for highly able middle school students drawn from across the Commonwealth. In time, we will post research and best practices. We hope such data will enhance the statewide conversation about a comprehensive PK-16 strategy that encourages more youngsters to pursue and excel in STEAM-related disciplines and careers.

## HUMAN CAPITAL - continued

### *Structure and Governance Sub-committee*

The Human Capital Committee will convene early in the New Year. One sub-committee will focus on structure and governance. The Steering Committee recommended Co-founders Judy Stewart and Caroline Martin and Steering Committee member Jack Ezzell form the structure and governance sub-committee. They will study a side-by-side comparative analysis of governance options currently under development, and make recommendations on the governing structure of the VA STEAM Academy.

By the end of February, the Structure and Governance sub-committee will be in a position to recommend the membership, roles and responsibilities of five to six advisory committees. VA STEAM's consortium partners will recommend and help select members to serve on the advisory committees, ensuring regional interests, assets, and needs are honored by VA STEAM. The Structure and Governance sub-committee will propose a meeting schedule that anticipates having held a first meeting with each advisory group by end of May, 2013.

### *Student Admissions Sub-committee*

A second Human Capital sub-committee will gather to address student admissions. Sub-committee members will review processes and principles that drive other exemplary education models and make recommendations to ensure equitable representation across the Commonwealth.

### *Faculty Sub-committee*

A third sub-committee focusing on faculty recruitment and selection will also convene. This sub-committee will likely come online after Summer STEAM.

Both the student admissions and faculty recruitment and selection sub-committees will be significantly informed by findings from Summer STEAM.

## TEACHING AND LEARNING

### *Student Learning Outcomes*

On November 5, 22 partner representatives convened at Crowne Plaza in Hampton to contribute to the establishment of student learning outcomes that will reflect an exceptionally well-prepared STEAM Academy graduate. The draft standards framework will draw heavily upon national content standards, international assessments, and business- and industry-recommended learning contexts. Dialogue among Standards-Setting panelists continues online. A final report is being prepared by Steering Committee member Colleen Seremet for delivery February 2013.

## Summer STEAM

The VA STEAM Academy is intended to be a uniquely challenging experience for students who show exceptional talent and interest in science, technology, engineering, or mathematics. One element of the design calls for a middle graders' summer camp (Summer STEAM). Summer STEAM will bring together highly able and interested 6<sup>th</sup>-8<sup>th</sup> grade students from across the Commonwealth for deep content learning, real-world application, and personal development. With funding, we propose learning will continue throughout the school year with online modules and two, onsite refresher sessions. The Virginia STEAM Academy is on track to launch Summer STEAM, July 7-13, 2013.

The camp's goals are to

- 1) encourage more students to pursue challenging coursework in their home school environment,
- 2) equip students with the skills and competencies to serve as ethical leaders in their schools and communities;
- 3) beta test online module delivery with this selected group of campers;
- and 4) encourage students who wish to have an immersive, STEAM-focused high school learning experience to apply to the VA STEAM Academy as freshmen.



On December 12, 15 partner representatives, Co-founders, Steering Committee members, and facilitators gathered at Virginia Modeling, Analysis and Simulation Center (VMASC) to contribute to the design of the VA STEAM Academy summer camp. The Summer STEAM Design Team has agreed to react to a sample camp schedule and, in small, designated groups, design and deliver unique programming. The Summer STEAM camp description and application will be officially announced on the VA STEAM Academy's website in January/February. State Department of Education officials have provided significant contacts to VA STEAM's database of statewide coordinators for gifted and talented, math, science, military liaison, and homeschool. We will utilize these resources to get the word out about Summer STEAM.