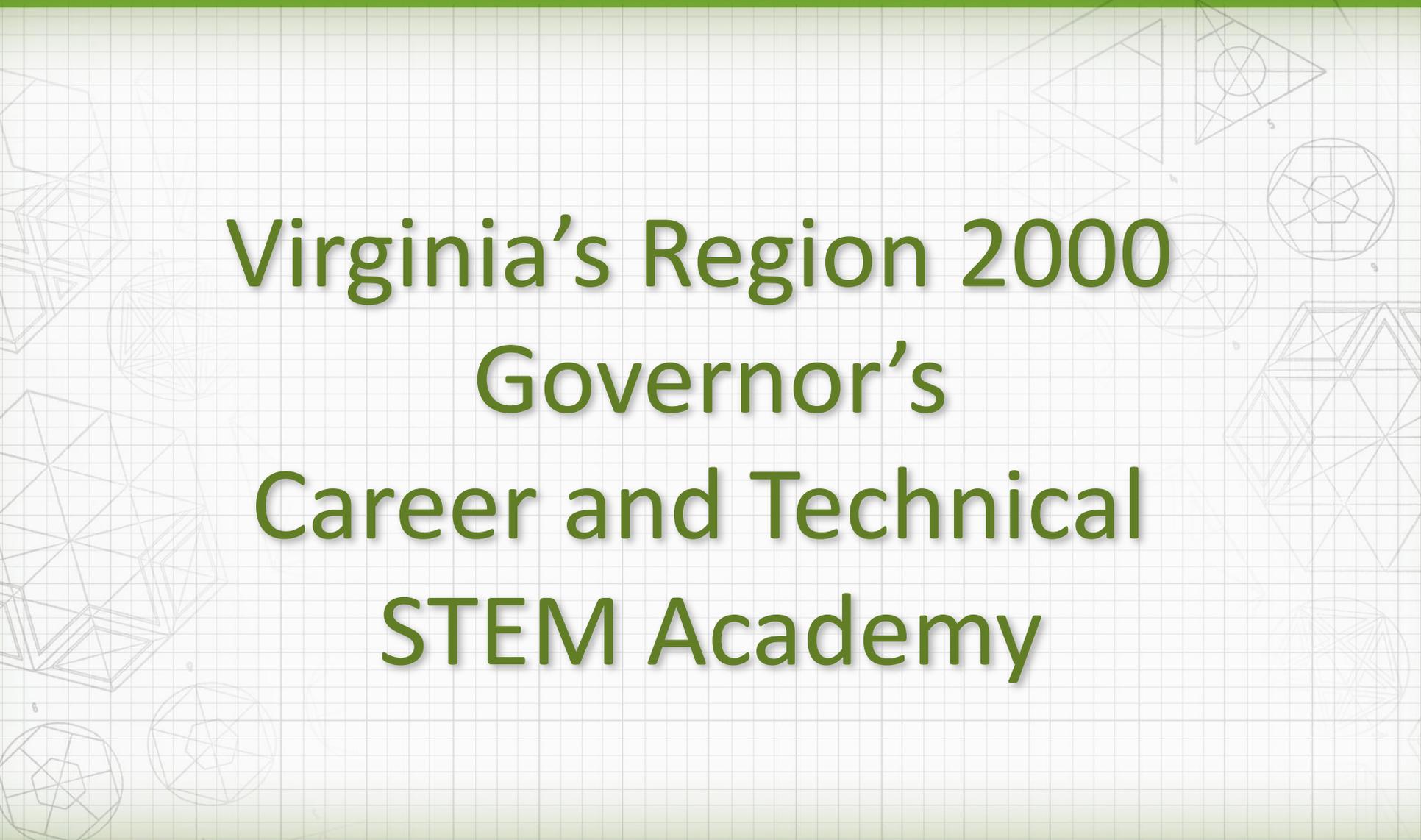


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# Virginia's Region 2000 Governor's Career and Technical STEM Academy



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# Regional Collaboration

- Virginia's Region 2000 is defined as the City of Lynchburg and the counties of Amherst, Appomattox, Bedford, and Campbell.
- Virginia's Region 2000 has historically shown exceptional regional collaboration successes.
- This Governor's STEM Academy is a result of a planning partnership that includes all of the region's public school divisions, Central Virginia Community College, Region 2000 Technology Council, Region 2000 WIB, Future Focus Foundation, and various private industry partners including: AMTI, AREVA, Babcock and Wilcox, Centra Health, and Delta Star.

# The Background

- For the past ten years, the Region 2000 Technology Council and CVCC have worked to develop a K-12 STEM-focused work force model that is responsive to the needs of the region's employers.
- This partnership has resulted in reaching more than 8,000 young people in the region with a hands-on STEM instructional practice.
- Our work responds to employers' needs in the technical, scientific, and healthcare industries. Economist Fletcher Mangum (May 2010) reports the most significant gains forecast in Region 2000 employment growth are in STEM industries - estimated at 20.9 percent by 2016.

# Academy Planning Committee

- Established to define a STEM program pathway for area high school juniors and seniors as they are considering college and career options
- Has representation from all of the collaborative partners
- Executive level administrators or their designee will serve until the opening of the academy planned for fall 2013
- Members will identify and establish the ongoing governing board following Virginia Board of Education review and approval of our application.

# Rationale

“Virginia has identified career and technical education as an ideal venue for developing STEM literacy and other critical 21<sup>st</sup> Century skills through applied learning.”

*Source: A Gap Analysis of Virginia's Policy Landscape: Building a Science, Technology, Engineering, and Math Education Agenda, December 2011*

# Identified Needs

- There are unmet student needs that lie between traditional Career-Technical Education and advanced programs such as the Governor's School.
- There are students that want a blend of career and technical hands-on learning, postsecondary education opportunities, and real world industry experience.
- The top two work force needs within Region 2000 are in the Career Clusters of Health Science and STEM.

# Curriculum Rationale

## Health Science Needs

- Healthcare in Virginia has a projected increase of 14.9 percent between 2008-2018.
- Positions targeted by the academy planning committee such as health technologists and technicians are expected to grow by more than 24 percent in the same time period.
- The salary for STEM-H positions is considerably higher than non STEM-H positions across various other industries in Virginia, almost 40 percent higher.

*Source: Virginia Workforce Connection, [found at www.vawc.virginia.gov](http://www.vawc.virginia.gov)*

# Curriculum Rationale

## STEM Needs

- In this Career Cluster, occupations such as maintenance and repair technicians are expected to grow by 21 percent and related positions such as machine maintenance and mechanical engineering increase by 6.2 percent from 2008-2018.
- Almost one-third of employers in Region 2000 are engineering, maintenance, or manufacturing focused.

*Source: Virginia Workforce Connection, found at [www.vawc.virginia.gov](http://www.vawc.virginia.gov)*

# Curriculum Rationale

- Virginia's Region 2000 Profile indicates that two of our four largest employment industries are healthcare and manufacturing. *Source: Virginia Employment Commission, 4<sup>th</sup> Quarter Report, 2011*
- Of the 50 largest employers in the Region 2000 economic profile area, six are in the healthcare field and seventeen are in the manufacturing sector.
- Partner companies such as AREVA, Babcock and Wilcox, Centra Health, and Delta Star are on the list. Potential partners we have yet to contact include: Abbott Laboratories, Harris Corporation, Barr Laboratories, Tri-Tech Laboratories, Westminster Canterbury, and CB Fleet to name a few.

# Enhanced Course Offerings

- The planning committee is developing sequential course offerings in the areas of Health Science and STEM that lead to entry level employment opportunities and that will transition to postsecondary education.
- Dual enrollment college credit will be available for STEM Academy students by fall of 2013.
- Finalized courses will be new options that will not be offered to students in the five school divisions that are part of the Academy.

# Project Lead The Way

- Project Lead The Way is the leading provider of rigorous and innovative STEM education curricular programs used in schools.
- The two curriculum programs the Academy will launch are Pathway to Engineering (STEM) and a Biomedical Sciences Program (Health Science).
- Each program allows local business and industry partners to have input into course offerings, thereby meeting local employment needs and preparing students for further educational opportunities.

# Fiscal Agent

- Lynchburg City Public Schools has agreed to serve as the fiscal agent for the R2K-CTE STEM Academy as they do for other regional programs.
- This fiscal arrangement with Lynchburg City Public Schools will be similar to the current successful model with the Central Virginia Governor's School for Science and Technology.

# Program Descriptions

The Academy planning committee will work cooperatively with partners to develop program descriptions that incorporate:

- Rigorous academic content in CTE
- An emphasis on STEM Career Pathways
- Individualized high school plans of study
- Evidence that graduates will complete a college and career readiness curriculum
- Evidence that graduates will qualify for the Advanced Studies Diploma
- Virginia's Workplace Readiness Skills in the Commonwealth

# Objectives

- Curriculum will target students with an affinity for high-tech training, interested in obtaining industry certification, and pursuing postsecondary education
- Program will incorporate a blend of technical skills with rigorous academics
- On-the-job training with partner industry mentorships and internships will be another key component to the curriculum

# Performance Measures

- Improve academic achievement by analyzing pre- and post-test data
- Increase the completion rate of dual-enrollment courses in cooperation with CVCC
- Provide workplace readiness experiences
- Increase high school graduation rates and reduce dropout rates through increased academic and industry support by 5 percent each year

# Performance Measures

- Increase proportion of students completing college and career-ready curriculum
- Reduce college remediation by monitoring Academy student scores on university entrance exams
- Increase number of industry certifications in Health Science and STEM pathways by 5 percent
- Increase number of graduates employed in high-wage, high-demand, and high-skill careers from a baseline to be established

# Proposed Program

- Housed on the grounds of Central Virginia Community College
- Available to juniors and seniors from Region 2000 public schools with an initial enrollment of up to 50 students
- School schedule and transportation modeled similar to the Central Virginia Governor's School for Science and Technology and Lynchburg City Public Schools
- Courses delivered in a classroom or laboratory setting using highly qualified instructors licensed by the Virginia Department of Education and/or certified by the Virginia Community College System.

# Program Completion Criteria

- Earning a standard or advanced studies diploma
- A goal to attain 100 percent of the Competency Based task list
- Successfully finishing a complete project model
- Successfully completing a work-based learning experience
- Achieving a qualifying score on a postsecondary entrance exam
- Obtaining one or more industry certifications
- Earning a minimum of 9 dual enrollment college credits
- Successfully completing a course of study that meets the guidelines of the Commonwealth Scholars Program

# Funding and Facilities

- Central Virginia Community College agreed to provide building and lab space on its campus
- Local school divisions agreed to provide support through in-kind contributions and direct funding
- The Academy planning committee will seek additional funding from business and industry partners
- The Future Focus Foundation will provide support by seeking grant funding opportunities for the Academy

# Materials and Equipment

- Materials and high-tech equipment will be provided through local contributions from academy planning committee partners
- Future sources of materials and equipment will be provided annually through the budgetary process and governing board of the Academy

# Program Evaluation

The Academy will undergo a continuous quality improvement process to include:

- An annual review of the Academy's policies, procedures and outcomes by the administrative staff, teachers, planning committee members, advisory committee members, parents and students
- An annual review of the program design and instructional delivery by the administrative staff, teachers, planning committee members and advisory committee members

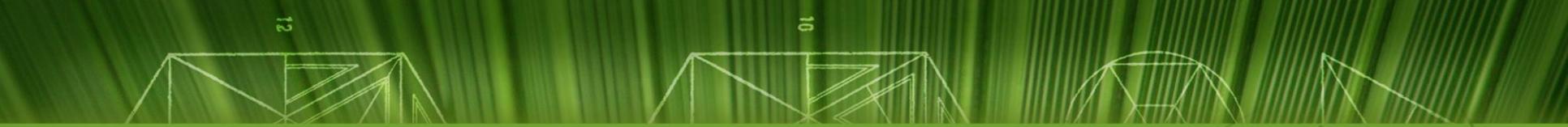
# Program Evaluation

The Academy will undergo a continuous quality improvement process to include:

- An annual review of survey data and focus group notes from students, parents, staff, community members, and partnership entities
- An annual collection and reporting of relevant data to the Virginia Department of Education pertinent to student achievement, goal achievement, and other prescribed indicators

# STEM Academy Staff

- Will participate in local, state, regional, and national professional development and our engineering teachers will be Project Lead The Way certified
- Opportunities for collaboration between industry partners and instructors will be made available throughout the year
- Staff will be evaluated according to the human resources policies and practices of the Lynchburg City Public Schools
- Initial staff will include a Director, and two instructors, one for each career pathway. Additional instructors may be contracted through CVCC or a school division.



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