



Governor's STEM Academies in Virginia

NACEP Annual Conference
October 23–25, 2011

Session Agenda

1. What is a STEM Academy in Virginia?
 2. What are the objectives of STEM Academies?
 3. What support does the state provide schools divisions to create STEM Academies?
 4. What conditions must be met to become a STEM Academy?
 5. What are the training requirements for teachers?
 6. How are teachers involved in working together in the STEM Academy?
 7. What lessons have you learned thus far?
 8. What has been your greatest success thus far in terms of advancing student academic and technical achievement, and career interests?
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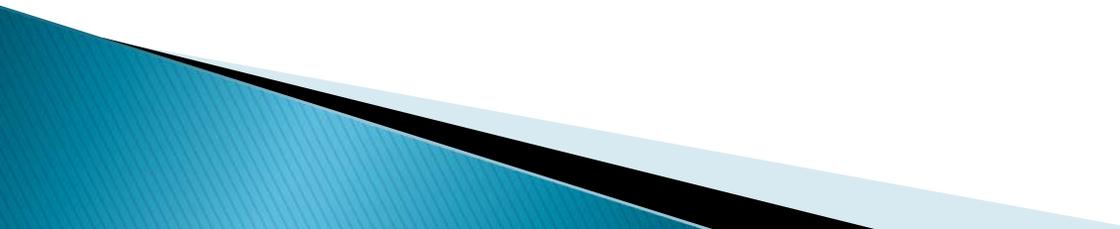


- ▶ In 2007, the NGA Center for Best Practices released a call for proposals focused on improving science, technology, engineering, mathematics (STEM) education.
- ▶ Virginia was one of six states to receive a \$500,000 implementation grant. The other states included Colorado, Hawaii, Ohio, Pennsylvania, and Minnesota.

Governor's Passion for Career and Technical Education

- ▶ Governor Tim Kaine (2007) proposed to the Board of Education that the Virginia application to the NGA Center for Best Practice focus on improving STEM through Career and Technical Education.
 - Create Governor's Career and Technical Academies that would be parallel to the state's Governor's Schools.
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Governor's Passion for Career and Technical Education

- ▶ The Governor's STEM Academies shall be designed to expand options for the general student population to acquire science, technology, engineering and mathematics literacy, and other critical skills, knowledge, and credentials that will prepare them for postsecondary education and for high-demand, high-wage, and high-skill careers in Virginia.
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Governor's STEM Academy Objectives

- ▶ Increase the readiness of high school graduates for college level work in the STEM career cluster.
 - Increase the number of students successfully completing mathematics courses at the level of Algebra II or higher in high school.
 - Increase the number of students successfully completing a State Scholars Course of Study (includes increasing the number of students completing a physics course.)
 - Increase the number of students successfully completing college dual enrollment courses in high school.

Governor's STEM Academy Objectives (cont.)

- ▶ Increase the readiness of high school graduates for other postsecondary pathways.
 - Increase the number of students successfully completing industry certifications, state licensure examinations and occupational competency assessments in high school.
 - Increase the number of students successfully completing career and technical education concentrations in high school.
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Governor's STEM Academy Objectives (cont.)

- ▶ Increase public understanding and support for K–12 STEM education redesign as an integral part of improving high school graduation rates and supporting Virginia's innovation capacity.
 - Increase business financial support for career and technical education.
 - Increase legislative support for career and technical education.



Governor's STEM Academies Implementation Timeline

- ▶ Fall 2007 – Released a call for proposals
- ▶ November 2007 – Board of Education approved criteria for establishing Governor's Academies
- ▶ January 2008 – 6 of 22 proposals from local school divisions approved and received planning and implementation grants

STEM Academy Criteria

- ▶ An Academy is a program not a location.
 - ▶ Partners are from the business and industry community and higher education.
 - ▶ Must provide at least two career pathways – one that meets a state need and the other meets a local or regional need.
 - Of the two or more pathways implemented, one must be in the STEM career cluster.
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Criteria: Career Clusters



Career Clusters' icons are being used with permission of the:
States' Career Clusters Initiative, 2006, www.careerclusters.org

STEM Academy

Criteria (cont.)

- ▶ Provide a rigorous academic middle school program to prepare students for a challenging high school program focused on rigor and relevance.
- ▶ Provide students a significant work-based experience representing additional instruction beyond the classroom such as:
 - Job shadowing
 - Mentorships
 - Project-based learning
 - Cooperative education
 - Service learning

STEM Academy

Benchmarks for Graduation

Students must complete one or more of the following:

- ▶ Earn one or more industry certifications, or occupational competency assessments, or state licenses;
 - ▶ Demonstrate competency on an assessment recognized by postsecondary institutions such as College–Level Examination Program (CLEP), or college placement tests;
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STEM Academy

Benchmarks for Graduation

- ▶ Earn at least 9 transferable college credits as defined by the Early College Scholars program including dual enrollment and advanced placement; and/or
 - ▶ Earn an associate degree.
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State Council of Higher Education in Virginia

- ▶ Each application shall be reviewed and approved by SCHEV before final approval by the Virginia Board of Education.
 - Applications must identify dual enrollment courses and illustrate transition from secondary to postsecondary career pathways.

GAITE Academy

- ▶ A regional program for six school divisions in partnership with New Horizons Regional Center
 - ▶ Electrical Engineering Technology
 - ▶ Mechanical Engineering Technology
 - ▶ Summer Camp for students and parents
 - ▶ Exploratory Saturdays for 7th and 8th graders
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The FIRST Academy in Suffolk

- ▶ Two school divisions working in partnership with the Pruden Center in Suffolk
 - ▶ Modeling and Simulation specialist program
 - ▶ Geographic Information System specialist program (GIS)
 - ▶ To meet the needs of the local area, region and military
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Academy for Renewable Resources in Halifax County

- ▶ High demand for quality workers in all areas of the wood industry
 - ▶ Provide instruction ranging from agriculture biological applications, biotechnology, and forestry to wood production
 - ▶ Provide a plan of study to increase the number of students that graduate from the Academy with an associate degree
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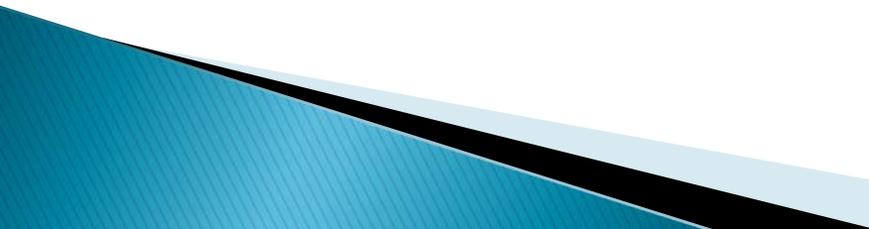
Governor's Career and Technical Academy in Arlington

- ▶ Northern Virginia Community College partnership
 - ▶ Five initial pathways ranging from STEM careers in health care and engineering to automotive technology
 - ▶ STEM professional development with Virginia Tech
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STEM for LIFE Academy in Russell County

- ▶ Emphasis on middle school preparation beginning in the six grade to support rigorous the high school courses
 - All eighth graders enroll in Algebra I
- ▶ Two pathways:
 - Information Technology
 - Engineering and Engineering Technology

STAT Academy in Stafford County

- ▶ Information Technology
 - ▶ Science and Engineering
 - ▶ Emphasis on service learning or exploration with required annual project to include investigating regional problems
 - ▶ Partners involved with the projects
 - ▶ Planning to include the first biomedical sciences program in Virginia with Project Lead the Way
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Governor's Career and Technical Academy for Engineering Studies in Chesterfield County

- ▶ The program is located at Lloyd C. Bird High School, and offers students two opportunities to pursue engineering studies.
- ▶ Two pathways:
 - Science and Mathematics
 - Engineering and Technology

Governor's Career and Technical Academy for STEM in Richmond

- ▶ The academy is located at the Richmond Technical Center.
- ▶ Two pathways:
 - Therapeutic Services
 - Engineering and Technology

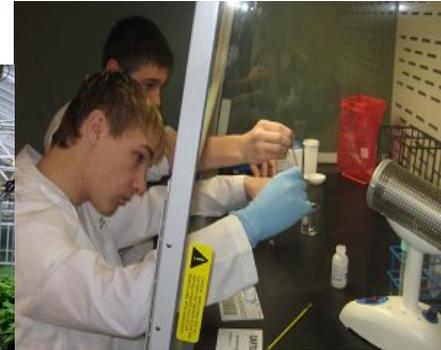
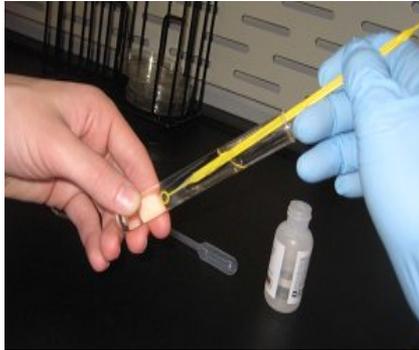
The Blue Ridge Crossroads Governor's Academy for Technical Education

- ▶ The academy is located in Carroll County and serves Carroll County, Galax City and Grayson County.
- ▶ Three clusters:
 - Engineering and Technology
 - Architecture and Construction
 - Agriculture, Food & Natural Resources

Governor's Career and Technical Academy in Loudoun County

- ▶ First Academy to be established that did not receive the NGA grant
- ▶ Five pathways:
 - Plant Systems
 - Diagnostic Services
 - Therapeutic Services
 - Engineering and Technology
 - Facility and Mobile Equipment Management

Success Stories



Monroe Technology Center
Home of the Loudoun
Governor's Career and Technical Academy
Launching Careers and Exploring Potential

HMS Moves into Beautiful New Space at Cornwall







Biotechnology Visits Whitestone Farm



Veterinary Students Always on the Go



Environmental Plant Science Students Visit Cleremont Farm

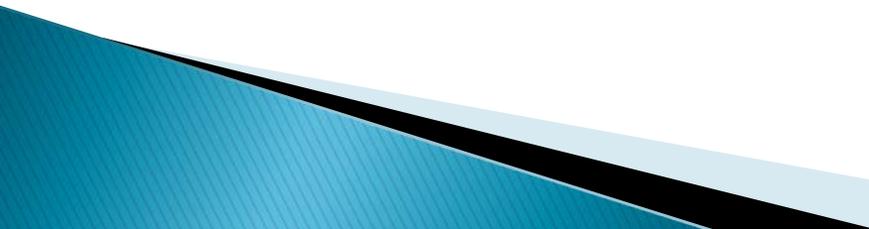


Indicators of Success...

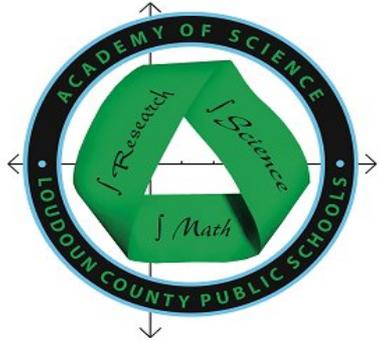
- ▶ Monroe Technology Center is one of the few technical centers in Virginia that has been accredited by SACS (Southern Association of Colleges and Secondary Schools) since 2005
- ▶ Average student enrollment is a little over 500 students annually (this is based on available classroom and lab space)
 - Current Academy enrollment accounts for approximately 150 students

- ▶ As of 2010, ten percent of the student body have been inducted into the National Technical Honor Society, which requires:
 - 3.0 GPA at their home school in core courses
 - 3.25 GPA in the technical field course
 - Missing no more than 5 days of school
 - Active in professional student organizations
 - Exemplary discipline record
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- ▶ In the past three years, Monroe Technology Center has increased the number of licensure opportunities by 84%
 - ▶ Approximately 86% of Academy students successfully pass the COMPASS college placement exams
 - The remaining 14% receive individualized remediation to take and successfully pass these exams by the end of the school year
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- ▶ The Monroe Technology Center and Loudoun Governors Career and Technical Academy programs have become a highly competitive, sought after option...especially since all dual enrollment courses were weighted by the school board an additional .5 during the 2008–2009 school year.
 - ▶ February 2011 Open House parent/student visitor numbers were over 300 on one 2 ½ hour evening!
 - ▶ Enrollment in the annual middle school summer career camp is close to 200...that is capped due to space and often has a lengthy wait list...
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Collaboration...



Questions?



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http://www.doe.virginia.gov/VDOE/Instruction/ct_academies/establishing_new/index.html