Career Clusters and Academic and Career Plans of Study: Virginia’s Best Practices

Virginia Department of Education

December 13, 2012
REFLECT: From Vocational Education to CTE
The Changing U.S. Workforce

![Bar chart showing percentage of workers by educational level from 1973 to 2007.]

- **1973**
  - Master’s Degree or better: 7%
  - Bachelor’s Degree: 9%
  - Associate’s Degree: 40%
  - Some College, No Degree: 32%
  - High School graduates: 30%
  - High School dropouts: 11%

- **2007**
  - Master’s Degree or better: 11%
  - Bachelor’s Degree: 21%
  - Associate’s Degree: 17%
  - Some College, No Degree: 10%
  - High School graduates: 30%
  - High School dropouts: 11%

Number of people: 1973 - 91 million, 2007 - 154 million

*Source: Pathways to Prosperity, Harvard, February 2011*
TRANSFORM: Reinvention
Reflect, Transform, Lead: A New Vision for Career Technical Education

This vision will advance CTE to be an innovative education system that prepares individuals to succeed in education and their careers so that the United States flourishes in this global, dynamic economy.

Our Vision's core principles are:

CTE is critical to ensuring that the United States leads in global competitiveness.

CTE actively partners with employers to design and provide high-quality, dynamic programs.

CTE prepares students to succeed in further education and careers.

CTE is delivered through comprehensive programs of study aligned to The National Career Clusters framework.

CTE is a results-driven system that demonstrates a positive return on investment.
What are Career Clusters?

Career Clusters are groupings of occupations and industries that are used for:

- Organizing curriculum design, and
- Career counseling and guidance.
16 Career Clusters


- Agriculture, Food & Natural Resources
- Architecture & Construction
- Arts, A/V Technology & Communications
- Business Management & Administration
- Education & Training
- Finance
- Government & Public Administration
- Health Science
16 Career Clusters

http://www.doe.virginia.gov/instruction/career_technical/
career_clusters/index.shtml

- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering & Mathematics (STEM)
- Transportation, Distribution & Logistics
What Do Career Clusters Do?

• Organize academic and technical knowledge and skills into a coherent sequence
• Identify pathways from secondary to postsecondary education
• Provide a framework for seamless education
• Provide instructional support for rigorous academic teaching and learning
What Do Career Clusters Do? (Continued)

• Provide alignment of academic and technical skills with workplace readiness skills
• Provide opportunities to involve parents, business and industry, and the school community
• Provide the development of effective plans of study that are based on career assessments
Career Clusters: *Multi-Faceted*

- **High Schools** can be organized around career clusters to prepare students to meet the demands of postsecondary education and the expectations of employers.

- **School Counselors** can use career clusters to help students explore options for the future.
Career Clusters: *Multi-Faceted*

- **Students** can use career clusters to investigate a wide range of career choices. Clusters make it easier for students to understand the **relevance** of their required courses and help them select their elective courses more wisely.

- **Parents, Educators, and Business and Industry** can use career clusters as a foundation for decision-making.
79 Career Pathways

- Within each career cluster, there are multiple career pathways that represent a common set of skills and knowledge, both academic and technical, necessary to pursue a full range of career opportunities within that pathway – ranging from entry level to management, including technical and professional career specialties.

- Based on the skills sets taught, all CTE courses are aligned with one or more career clusters and career pathways.
The foundational principle of career clusters/pathways is that a set of knowledge and skills are shared with other occupations in a pathway and other pathways in a cluster:

- **Cluster Level** – academic and technical skills and knowledge for all pathways within a cluster
- **Pathway Level** – academic and technical skills and knowledge within each pathway
- **Career Specialties** - full range of career opportunities within each pathway

The cluster level knowledge and skills are correlated with *Workplace Readiness Skills for the Commonwealth.*
Finance Plans of Study

Specific Skill Preparation May Continue

Banking Services Pathway K & S
Business Finance Pathway K & S
Insurance Pathway K & S
Accounting Pathway K & S
Securities and Investments Pathway K & S

Cluster Knowledge and Skills

Courtesy of Benson Consulting – July 2007
The Carl D. Perkins Career and Technical Education Act of 2006 requires career cluster/pathway programs of study to expand connections between secondary and postsecondary education through the development and implementation of “programs of study.”
According to the Act, programs of study must:

• Incorporate secondary education and post-secondary education elements;

• Include academic and career and technical content in a coordinated, non-duplicative progression of courses;

• Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or bachelor’s degree; and

• Include the opportunity for secondary education students to participate in dual or concurrent enrollment programs or other ways to acquire postsecondary education credits.
SUMMARY

- **Career cluster** – organizer of knowledge and skills needed by a broad industry
- **Career pathway** – organizer of knowledge and skills statements shared by professions
- **Plans of study** – sequence of instruction that prepares individuals for careers
# Commonwealth of Virginia
## Plan of Study

**Cluster:** Finance  
**Pathway:** Accounting

This Career Pathway Plan of Study can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner’s educational and career goals. This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

### Sample - Occupations Relating To This Pathway:
- Accountant
- Accounting Clerk
- Accounting Supervisor
- Account Receivable Clerk
- Adjuster
- Adjustment Clerk
- Assistant Treasurer
- Auditor
- Billing Clerk
- Billing Supervisor
- Bookkeeper
- Budget Analyst
- Budget Manager
- Bookkeeper
- Certified Public Accountant
- Chief Financial Officer
- Collections Executive
- Controller
- Cost Accountant
- Credit Manager
- Finance Director
- Financial Accountant
- Investment Banker
- Insurance Manager
- Payroll Accountant
- Payroll Clerk
- Payroll Analyst
- Sales Manager
- Tax Accountant
- Tax Consultant
- Tax Examiner
- Tax Preparation
- Tax Supervisor
- Tax Writer
- Teacher
- Treasurer
- Treasury Manager
- Treasury Specialist

### Education Levels

<table>
<thead>
<tr>
<th>GRADE</th>
<th>English/Language Arts</th>
<th>Mathematics</th>
<th>Science</th>
<th>Social Studies/Science</th>
<th>Other Required Courses Recommended Electives Learner Activities</th>
<th>Recommended Career and Technical Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>English 8 (1120)</td>
<td>Math 8/Pre-Algebra (3112)</td>
<td>Physical Science (4125)</td>
<td>Civics &amp; Economics (2357)</td>
<td></td>
</tr>
</tbody>
</table>

### Graduation Requirements:

### Career Assessment:
Identify an appropriate career assessment instrument at the middle school level used to help students and their parents plan for high school.

### High School Courses in the Pathway

List related certifications/credentials approved by VDOE and offered locally:
- http://www.cteresource.org/apg (Go to Certification – License Sector)
- Virginia Workplace Readiness Assessment: IC3 Certification, Accounting—Basic Assessment (NOCTI), Accounting—Complete Assessment (NOCTI), Microsoft Office Specialist (MOS), Fundamental Business Concepts (ASB), Workplace Readiness Skills for the Commonwealth (CTEOS)

### Additional Learning Opportunities:
- CTE Organization(s): DEC, FBLA, FCCLA, SkillsUSA, FFA
- Work-Based Learning:
  - Career Research
  - Cooperative Education
  - Job Shadowing
  - Career Pathway Project
  - Student Apprenticeship

### Postsecondary: Placement Assessments such as Virginia Placement Test or COMPASS

### SAMPLE POSTSECONDARY PROGRAMS RELATED TO THIS CAREER PATHWAY

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Associate Degree, College Certificate, or Apprenticeship</th>
<th>Bachelors Degree</th>
<th>Postgraduate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Management AAS</td>
<td>(Determined locally)</td>
<td>(Determined locally – optional)</td>
</tr>
</tbody>
</table>
Academic and Career Plan (ACP)

Beginning with the 2013-2014 academic year, all schools shall begin development of a personal Academic and Career Plan for each seventh-grade student with completion by the fall of the student’s eighth-grade year.

http://www.doe.virginia.gov/instruction/graduation/academic_career_plan.shtml

Source: Regulations Establishing Standards for Accrediting Public Schools in Virginia (SOA)
8 VAC 20-131-140: College and career preparation programs and opportunities for postsecondary credit.
Academic and Career Plan (ACP)

Shall include, but not be limited to:

• The student’s program of study for high school graduation that is aligned with a postsecondary career pathway and/or college entrance;

• Postsecondary career pathway based on student’s academic and career interests;

• Shall be signed by the student, student’s parent or guardian, and school official(s) designated by the principal;
• The school shall have met its obligation for parental involvement if it makes good faith effort to notify the parent or guardian of the responsibility for the development and approval of the Plan;
• Shall be included in the student’s record; and
• Shall be reviewed and updated before the student enters the ninth and eleventh grades.
Plans of Study (POS) and Academic and Career Plans (ACP)

- POS and ACP interchangeable
- Career Clusters and Sample Plans of Study-

- Guidelines for Academic and Career Plans-

- Technical Assistance Document-
Academic and Career Plans of Study Checklist

- Career Clusters Web page
  

- Plans of Study Checklist is located on each of the 16 Career Cluster pages
  
CareerClusters

WAYS TO COLLEGE & CAREER READINESS

CareerClusters helps students investigate careers and design their courses of study to achieve their career goals. For this reason, Virginia has adopted the nationally accepted structure of career clusters, career pathways, and sample career specialties or occupations.

A Career Cluster is a grouping of occupations and broad industries based on commonalities. Sixteen career clusters provide an organizing tool for schools, small learning communities, academies and magnet schools.

In each career cluster, there are multiple career pathways that represent a common set of skills and knowledge, both academic and technical, necessary to pursue a full range of career opportunities within that pathway — ranging from entry level to graduate, including technical and professional career specialties. Based on the skills taught, all CTE courses are aligned with one or more career clusters and career pathways.

The States Career Cluster Initiative (SCCI)

The States Career Cluster Initiative website serves as a clearinghouse for Career Clusters research, products, services, and technical assistance for implementation of the States Career Cluster Framework for lifelong learning.

Support for the Career Clusters movement is provided on the national level by the National Career Technical Foundation as managed by the Association of State Directors of Career and Technical Education Consortium (NASCCTEC). The site includes a listing of all 16 career clusters and 79 career pathways.

SOURCES

Ready? Life After High School – a career resource magazine distributed to all juniors at Virginia’s public schools. Parents: Help your Child Prepare a Passport to the Future is a career resource brochure to assist 8th grade boys and girls as they transition from middle school to high school.

R U College and Career Ready? A World of Opportunities (PDF)

Parents: Help Your Child Navigate the Waterways to Their Future – 8th Grade Parent Resource


Inside Resources

Career Planning Guide – a searchable online resource to help students determine the most effective CTE courses of study based on a student’s career goals.

The 16 Career Clusters:

- Agriculture, Food & Natural Resources
- Architecture & Construction
- Arts, A/V Technology & Communications
- Business Management & Administration
- Education & Training
- Finance
- Government & Public Administration
- Health Science
- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering & Mathematics
- Transportation, Distribution & Logistics

These topics also are listed in the menu to the right as you navigate around the Career Clusters website.
This cluster is ideal for people who enjoy working outdoors. Agriculture today offers many careers besides traditional farming. Some farmers offer “pick-your-own” apple or peach orchards. In addition, the increased emphasis on producing clean energy is creating new opportunities for farmers to grow plants and grains that can be used in biofuels. If you enjoy working with animals, you may want to consider exploring jobs as a veterinarian or on a ranch.

Job Outlook

Agriculture is Virginia’s largest industry, and retirements will keep job prospects good, even if overall employment for some farming careers is expected to decline—by about 28 percent by 2018. Jobs prospects for environmental scientists will be good overall, especially for those seeking employment in state and local government. Environmental engineering technicians will find the best opportunities after earning an associate’s degree or other postsecondary training in engineering technology.

Other jobs under this category aren’t faring quite as well. Overall employment in the food processing industry is expected to increase more slowly than other occupations. Organic farming has seen many gains in recent years and is now the fastest growing segment in agriculture. The need for foresters is expected to grow 9 percent by 2018, about as fast as average.

Occupations in This Cluster & What They Make

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employed in VA</th>
<th>Typical salary</th>
<th>Education level**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butchers</td>
<td>2,390</td>
<td>$18K – $45K</td>
<td>HS</td>
</tr>
<tr>
<td>Environmental engineering tests</td>
<td>280</td>
<td>$28K – $72K</td>
<td>HS/CC</td>
</tr>
<tr>
<td>Environmental scientists</td>
<td>3,120</td>
<td>$30K – $100K</td>
<td>4/4MD</td>
</tr>
<tr>
<td>Farm workers and laborers (both crops and animals)</td>
<td>2,230</td>
<td>$17K – $34K</td>
<td>HS/CC</td>
</tr>
<tr>
<td>Foresters</td>
<td>250</td>
<td>$35K – $71K</td>
<td>4C</td>
</tr>
<tr>
<td>Landscapeers, groundskeepers</td>
<td>23,100</td>
<td>$17K – $36K</td>
<td>HS</td>
</tr>
<tr>
<td>Logging equipment operators</td>
<td>1,100</td>
<td>$22K – $47K</td>
<td>HS</td>
</tr>
<tr>
<td>Natural science managers</td>
<td>1,150</td>
<td>$37K – $106K</td>
<td>4/4/2MD</td>
</tr>
<tr>
<td>Nonfarm animal caretakers</td>
<td>4,870</td>
<td>$16K – $26K</td>
<td>HS/CC</td>
</tr>
<tr>
<td>Pest control workers</td>
<td>8,940</td>
<td>$22K – $38K</td>
<td>HS/CC</td>
</tr>
<tr>
<td>Tree trimmers</td>
<td>630</td>
<td>$20K – $40K</td>
<td>HS</td>
</tr>
<tr>
<td>Vet assistants</td>
<td>2,850</td>
<td>$18K – $32K</td>
<td>HS</td>
</tr>
<tr>
<td>Veterinarians</td>
<td>1,950</td>
<td>$50K – $145K</td>
<td>2P</td>
</tr>
<tr>
<td>Veterinary techs</td>
<td>1,240</td>
<td>$21K – $44K</td>
<td>HS/CC</td>
</tr>
</tbody>
</table>

*50th percentile is greater than $201,400
INTRODUCTION:

Plan of Study (Program of Study) is required by the Carl D. Perkins Career and Technical Education Act of 2006 and is defined as planning a sequence of academic, career, and technical, or other elective courses that incorporate secondary education and postsecondary education elements; include coherent and rigorous content aligned with challenging academic standards and relevant CTE content in a coordinated, non-duplicative progression of courses that align secondary and postsecondary education to adequately prepare students to succeed in postsecondary education; may include the opportunity for secondary students to participate in dual or concurrent enrollment programs or acquire postsecondary credit in other ways; and lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree. The following checklist is designed to carefully review the middle/secondary component of the Career Cluster Plans of Study.

Demographics:

Name of person submitting the plan of study: 
Name of school or institution submitting the plan of study: 
Contact information: E-mail  Phone  
Title of Cluster:  
Title of Pathway:  

1. Verify Cluster and Career Pathway titles
   Select a Career Cluster and Career Pathway title by clicking on “Choose a Career Cluster and Career Pathway” below and pick from the drop-down list.
   Choose a Career Cluster and Career Pathway
   ➤ Titles are accurate according to the 2007 revisions: 

   Source:  

2. Examine the middle school section
   ➤ Academic courses identified (optional): Yes  No   
   ➤ CTE courses identified: Yes  No   
   ➤ Other courses/electives/activities listed: Yes  No   
   *The academic courses are standard for middle school, so it is allowable for those columns to be blank.

   Note: The CTE course columns and the “other electives” column should have items that relate to the cluster and pathway verified above being reviewed.


3. Confirm the career assessment
   ➤ A credible career assessment is identified: Yes  No   

   Some examples would be: The Virginia Wizard, Kuder, Bridges.

4. Examine secondary academic courses
   ➤ Appropriate and current graduation requirements are listed: Yes  No   

   Sources:
   (A) Regulations Establishing the Standards for Accrediting Public Schools in Virginia, effective September 15, 2010, at http://www.doe.virginia.gov/boe/accreditation/sca.pdf Refer to pages 12, 13, 15, 16 (bottom), and 17.
   OR
   (B) Graduation Requirements page of the VDOE Web site, http://www.doe.virginia.gov/instruction/graduation/index.shtml Once there, click on one of the diploma types listed in the right sidebar.

   Note: Implementation of the technical diplomas has been delayed by the General Assembly.
Career Development Resources

Virginia Career VIEW-
www.vacareerview.org

Virginia Education Wizard-
www.vawizard.org
R U Ready?

Resources

- Youth Appealing magazine
- Promotes Career Preparation through Pathways
- PDF Version on the CTE Home Page
- Online and in print
- Targeted Audience: Sophomores in High School
- Plans for Life After High School
- Opportunities in High School
- Parent’s Guide
- Teachers Guide

http://www.cteresource.org/links/career_resources.html
The Career Planning Guide organizes careers into a three-level hierarchy. Career clusters, the broadest category, group careers that share basic characteristics. Each career cluster is further divided into career pathways, which contain specific occupations. Occupations correspond to job titles.

- Agriculture, Food and Natural Resources
- Architecture and Construction
- Arts, Audio/Video Technology and Communications
- Business Management and Administration
- Education and Training
- Finance
- Government and Public Administration
- Health Science
- Hospitality and Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections and Security
- Manufacturing
- Marketing
- Science, Technology, Engineering and Mathematics
- Transportation, Distribution and Logistics
A Resource for Counselors, Administrators, and Educators

The CTE Administrative Planning Guide (APG) includes information to help local school divisions plan and schedule instructional programs. The APG is organized by career clusters, with a complete listing of courses, concentration sequences, and credentials available to students as they plan for career entry and continuing education. Users may access course information by cluster or by searching for specific courses or certifications.

NOTE: Within the APG, CTE courses that must maintain a maximum pupil-to-teacher ratio of 20 students to one teacher, due to safety regulations, will be noted on individual course pages.

Each contains the following information:

1. Available middle school courses
2. Secondary course offerings
   - Course number, course title, duration, and suggested grade levels
   - Course description and prerequisites
   - Approved concentration sequences that fulfill the completer requirement for sequential electives (equivalent to two 36-week courses)
   - Career cluster(s) and pathways for federal and state reporting purposes
   - Certification, licensure, and occupational competency assessment requirements

Please use the “Comments and Questions” link on the left to contact us with concerns and suggestions, as well as questions concerning the content of the APG. We look forward to your suggestions for improvement.

Lolita E. Hall, Director
Office of Career and Technical Education Services
Virginia Department of Education
Career Clusters in Virginia

• All CTE courses are aligned with one or more career clusters and career pathways within those clusters based on the skills sets taught in the class.

• VERSO is now organized by Career Clusters and Pathways (http://cteresource.org/verso/).

• Career cluster and pathway alignments are listed in:
  • the Administrative Planning Guide (http://www.cteresource.org/apg/),
  • the Career Planning Guide (www.cteresource.org/cpg/), and