Taking the Mystery Out of Career Clusters

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Presentation Objectives

- Provide an overview of the States' Career Clusters Initiative
- Explore the similarities and differences between the States' Career Clusters Initiative and the North Carolina Pathways

Discussion Topics

- What are Career Clusters?
- How were Career Clusters developed?
- How are Career Clusters structured?
- Career Clusters and Economic Development
- Where do Career Clusters fit in the educational system

Discussion Topics

- Benefits of implementing Career Clusters
- Getting Started: Six Steps
- Career Cluster Resources

What are Career Clusters?

- Career Clusters are groupings of occupations and industries.
- These groupings are used as an organizing tool for curriculum design.

How Were Career Clusters Developed?

- U.S. Department of Education
- National Association of State Directors of Career Technical Education Consortium
- National Advisory Committees
  - Business and Industry
  - Labor
  - Government
  - Education (secondary and postsecondary)

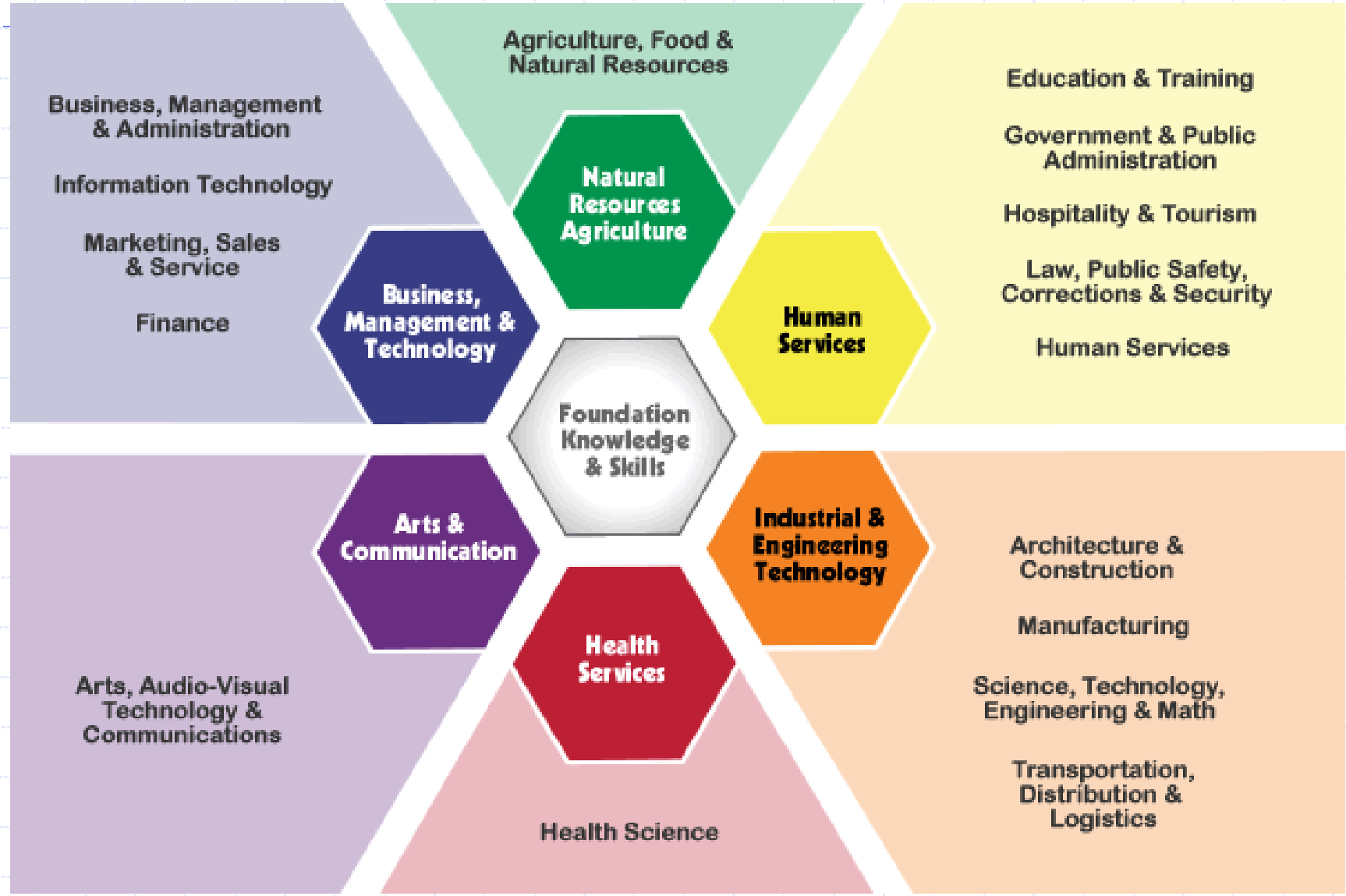
Sixteen Career Clusters

- Agriculture, Food & Natural Resources
- Finance
- Architecture & Construction
- Education & Training
- Arts, AV Tech & Communications
- Government & Public Administration
- Business, Mgt. & Admin.
- Health Science
- Hospitality & Tourism
- Manufacturing
- Human Services
- Marketing Sales & Services
- Information Technology
- Science, Tech, Engineering & Math
- Law, Public Safety, Corrections & Security
- Transportation, Distribution & Logistics

North Carolina Ten Career Pathways

- Agricultural and Natural Resources Technologies
- Biological and Chemical Technologies
- Business Technologies
- Commercial & Artistic Production Technologies
- Construction Technologies
- Engineering Technologies
- Health Sciences
- Industrial Technologies
- Public Service Technologies
- Transport Systems Technologies

MO Career Clusters Framework



MICHIGAN Career Pathways	US Department of Education Career Clusters
Arts & Communications	Arts, A/V Technology & Communications
Business / Management / Marketing & Technology	Business, Management & Administration
	Finance
	Hospitality & Tourism
	Information Technology
	Marketing, Sales & Service
Engineering, Manufacturing & Industrial Technology	Architecture & Construction
	Manufacturing
	Science, Technology, Engineering & Mathematics
	Transportation, Distribution & Logistics
Health Sciences	Health Science
Human Services	Education & Training
	Human Services
	Law, Public Safety & Security
	Government & Public Services
Natural Resources & Agriscience	Agriculture, Food & Natural Resources

Career Clusters: Tool

TOOL for a seamless educational system that:

- Blends rigorous academic/technical preparation
- Provides career planning
- Offers options for students to experience all aspects of an industry
- Facilitates/assists students with transitions

CTE Works in North Carolina

Students of the 2003 freshman class who graduated in 2007

- Overall high school completion rate 69.5%
- CTE Completion rate 81.7%

What Career Clusters DON'T Do

- Do not take away current programs
- Do not take away occupational areas
- Do not track learners into a single job

What Career Clusters DO

- Provide a framework that current programs slot into
- Provide a framework for seamless education
- Provide MORE career options for learners
- Provide a framework for addressing the entire world of work
- Provide a picture of how Knowledge and Skills transfer vertically and horizontally

Career Clusters Framework

Sample Career Specialties/ Occupations							
Pathways							
Foundation KAS	Foundation Knowledge and Skills						

Architecture & Construction

Careers in designing, planning, managing, building and maintaining the built environment.

Sample Career Specialties / Occupations	Architect • Architectural and Civil Drafter • Drafter • Regional and Urban Planner/Designer • Industrial Engineer • Materials Engineer • Mechanical Drafter • Environmental Designer • Civil Engineer (structural, geotechnical, transportation, etc.) • Programmer • Mechanical Engineer (HVAC, plumbing, fire protection, etc.) • Electrical Engineer (electronics, security, telecommunications) • Preservationist • Environmental Engineer (hydro engineering, acoustical, etc.) • Landscape Architect • Surveyor • Fire Prevention and Protection Engineer • Cost Estimator • Electrical and Electronic Engineering Technician • Civil Engineering Technician • Environmental Engineering Technician • Surveying and Mapping Technician • Interior Designer • Landscape Designer • Specifications Writer • Building Code Official • Computer Aided Drafter (CAD) • Renderer (traditional and computer) • Modeler (traditional and computer)	General Contractor/Builder • Specialty Contractor • Construction Engineer • Construction Manager • Superintendent • Project Manager • Construction Foreman • Estimator • Project Inspector • Manufacturer's Representative • Sales and Marketing Manager • Equipment and Material Manager • Scheduler • Education and Training Director/Coordinator • Safety Director • Construction Inspector • Subcontractor • Preservationist • Service Contractor • Field Supervisor • Specialty Trades Subcontractor • Mason • Construction Craft Laborer • Iron/Metalworker (structural and reinforcing) • Carpenter • System Installer • Electrician • Boilermaker • Electronic Systems Technician • Sheetmetal Worker • Security and Fire Alarm Systems Installer • Concrete Finisher • Glazier • Tile and Marble Setter • Landscaper/Groundskeeper • Elevator Installer • Roofer • Painter • Explosives Worker • Plasterer/Drywall • Paperhanger • Insulation Worker • Drywall Installer • Plumber • Pipe Fitter • Millwright • Heating, Ventilation, Air Conditioning and Refrigeration Mechanic • Carpet Installer • Electrician • Steamfitter • Terrazo Worker and Finisher	General Maintenance Contractor • Specialty Contractor • Construction Engineer • Construction Manager • Superintendent • Project Manager • Construction Foreman • Estimator • Facilities Engineer • Reliability Engineer • Environmental Engineer • Demolition Engineer • Project Inspector • Operating Engineer • Manufacturer's Representative • Sales and Marketing Manager • Equipment and Material Manager • Scheduler • Maintenance Planner/Scheduler • Maintenance Estimator • Security Controls Manager • Preservationist • Remodeler • Safety Director • Construction Inspector • Subcontractor • Service Contractor • Field Supervisor • Specialty Trades Subcontractor • Mason • Iron/Metalworker (structural and reinforcing) • Carpenter • System Installer • Electrician • Boilermaker • Cost Estimator • Sheetmetal Worker • Security and Fire Alarm System Installer • Concrete Finisher • Glazier • Tile and Marble Setter • Hazardous Materials Remover • Landscaper/Groundskeeper • Elevator Installer • Paperhanger • Insulation Worker • Drywall Installer • Insulation Worker • Plumber • Pipe Fitter • Millwright • Heating, Ventilation, Air Conditioning and Refrigeration Mechanic • Carpet Installer • Electrician • Steamfitter • Terrazo Worker and Finisher • Refractory Technician • Hydro Testing Technician • Thermal Control Technician • Restoration Technician • Wastewater Maintenance Technician • Highway Maintenance Worker
Pathways	**Design/Pre-Construction**	**Construction**	**Maintenance/Operations**
Cluster KAS	**Cluster Knowledge and Skills:** ♦ Academics ♦ Communications ♦ Problem Solving and Critical Thinking ♦ Information Technology Applications ♦ Systems ♦ Safety, Health and Environmental ♦ Leadership and Teamwork ♦ Ethics and Legal Responsibilities ♦ Employability and Career Development ♦ Technical Skills		

Name _____

Learner ID _____

School/College/University _____

SAMPLE

Architecture and Construction

Career Cluster Plan of Study for ► Learners ► Parents ► Counselors ► Teachers/Faculty

This Career Cluster Plan of Study (based on the Architecture and Construction Career Cluster) 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.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/ or Degree Major Courses for Architecture and Construction	SAMPLE Occupations Relating to This Career Cluster
	Interest Inventory Administered and Plan of Study Initiated for all Learners							
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Life or Physical Science	State History Civics or World History	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities such as SkillsUSA are also important including public speaking, record keeping and work-based experiences.	**Introduction to the Built Environment	► Architect ► Carpenter ► Civil Engineer ► Construction Foreman/Manager ► Contractor ► Demolition Engineer ► Drafter ► Drywall Installer ► Electrician ► Electronic Systems Technician ► Equipment/Material Manager ► General Contractor/Builder ► Heating, Ventilation, Air Conditioning and Refrigeration Mechanic ► Interior Designer ► Painter ► Paperhanger ► Plumber ► Project Estimator ► Project Inspector ► Roofer ► Safety Director ► Sheet Metal Worker ► Tile and Marble Setter
	10	English/ Language Arts II	Geometry	Biology	U.S. History		**The Language of Architecture and Construction **Information Technology Applications	
	11	English/ Language Arts III Technical Writing	Algebra II	Physics	Economics Psychology		**Safety, Health and the Workplace Environment	
	College Placement Assessments-Academic/Career Advisement Provided						Continue courses pertinent to the pathway selected.	
	12	English/ Language Arts IV	*Dependent on chosen pathway*	Chemistry				
	Articulation/Dual Credit Transcripted-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.							
POSTSECONDARY	Year 13	English Composition English Literature	*Dependent on chosen pathway*	Physics	American Govt. or History, plus Psychology/ Interpersonal Skills	All plans of study need to meet learner's career goals with regard to required degrees, licenses, certifications or journey worker statuts. Certain local student organization activities may also be important to include.	Continue courses pertinent to the pathway selected.	
	Year 14	Speech/ Oral Communication	*Dependent on chosen pathway*	Environmental Science	Sociology Business Law			
	Year 15	Continue courses in the area of specialization.						
	Year 16							

**See course descriptions on page 2.

SAMPLE

Structure of Foundation Knowledge and Skills

- Three components
  - Knowledge and Skill Statement (K&S Statement)
    - One or more Performance Elements for each K&S Statement
      - One or more Measurement Criteria/Performance Indicators for each Performance Element

Foundation Knowledge and Skills Topics

- Academics
- Communications
- Problem Solving and Critical Thinking
- Information Technology
- Systems
- Safety, Health and Environment
- Leadership and Teamwork
- Ethics and Legal Responsibility
- Employability and Career Development
- Technical Skills

Pathways

- Formulated by grouping professions that require similar talents, knowledge and skills
- The same three-component structure is found here as in the Foundation Knowledge and Skills

Occupations Specialties

- Specific occupations within the Career Cluster
  - Advanced skills typically taught for a particular occupation

Career Clusters and Economic Development

- Sources of Competitive Advantage
  - Business agility
  - Product and process innovation
- Transitions to New Workplaces
- Careers and Learning
  - Vertical and horizontal mobility
  - Self-directed career and learning management

Transitions to 21st Century Workplaces

	From:	To:
Management Functions	Centralized/Separated	Decentralized/Shared
Professional/Technical Knowledge	Centralized/ Specialized Some Workers	Decentralized/Integrated All Workers
Work Design	Jobs	Functional/Cross-functional Teams
Organizational Structure	Vertical Hierarchies	Customer-Supplier Networks
Employee Responsibility Management	Job Task Performance	Work Unit Performance Business Process
Career Progression	Vertical Limited Range	Vertical and Horizontal Full Range

Past Career Technical Education	Future Career Technical Education
Technical Skills Training in Isolation	Technical Career Preparation supported by rigorous academic and employability skills
Technical Skills Training in depth for one job	Career Preparation (in depth and in breadth) for lifelong career mobility and advancement
Education/Career Preparation for those who can't make it in college	Education/Career Preparation of choice for the diversity of all students
Program focused, instruction centered, compliance driven	Industry focused, student centered, and performance driven
Traditional names of focus on today's entry-level job preparation programs like carpentry and welding, in which programs, not pathways exist	Customized packaging of instruction into sequences of courses blending with science and math applications create new pathways for career advancement and continuing education for both emerging and existing careers over the lifespan

Where Do Clusters Fit in the Educational System?

- Elementary, Middle and Comprehensive High Schools
- Career Academies
- Small Learning Communities
- Regional Career Centers
- Magnet Schools
- Community Colleges
- Business and Industry (re-tool, cross-train)

How Are Clusters Used?

- Career Awareness
- Career Exploration
- Transportable Skills
- Advanced Technical Skills

Educational System Model

- Career Awareness (Grades K-5)
- Career Exploration (Grades 6-8)
- Career Preparation (Grades 9 – Postsecondary)
- Continuing Education/Lifelong Learning

Benefits for Learners

- Enhances academic achievement by providing real-world relevance
- Provides opportunities to explore multiple pathways
- Helps relate high profile careers to real life situations

Benefits for Faculty

- Curriculum can be tailored to the needs of the community
- Opportunity to integrate CTE and traditional academics
- Opportunity to enhance academic achievement for all students

Benefits for Schools and Colleges

- Broadens the scope of existing curricula
- Encourages coordination among faculty
- Provides a framework for curriculum alignment

Benefits for Parents

- Smoother entry into postsecondary education
- Students can make better career decisions

Benefits for Business

- Provides a well-qualified workforce which can quickly adapt to changing needs
- Opportunity for input in school curriculum
- Framework for cross-training or re-tooling the workforce

Benefits for Postsecondary

- Learners who have established a career path
- Learners with better academic skills and in need of less remediation

Benefits for Counselors

- Connects learner interest with coursework
- Motivates learners to reach higher academic achievement
- Shows relevance of school to postsecondary and lifelong learning

Getting Started: Six Steps

- Recognize the need for school-wide change
- Involve the community
- Build staff capacity
- Identify career themes
- Develop advisory boards
- Focus on professional development

Resources

- www.careerclusters.org
  - Preferred Product/Technical Assistance Providers
  - Brochures
  - Career Clusters Resources CD
  - Posters
  - Pathway Models
  - Plans of Study
  - Interest Inventory
  - Middle-Grade Student Introduction to Career Clusters
- Annual Career Clusters Institute
- www.careervoyages.com

Resources

- North Carolina Career Pathways http://www.ncpublicschools.org/cte/publications/career_pathways/
- North Carolina Career Outlook www.careeroutlook.com

What This Means

- Career Clusters are a part of our future
- They are a win-win for learners, parents, educators, and businesses
- They are flexible
- They fit into any educational setting

Questions?

- www.careerclusters.org