

# Career Clusters

Technological advances and global competition have transformed the nature of work and careers. To better prepare students for the careers of tomorrow, schools are providing challenging subjects presented in relevant contexts for learning. The United States Department of Education has organized these contexts into 16 occupational groupings called Career Clusters.

Career cluster pathways identify the knowledge and skills needed by students to meet the demands of further education and the expectation of employers. Working with schools through pathway partnerships, employers provide the educational community (both secondary and post-secondary) with information on what students need to know and be able to do to become successful in the career path of their choice. Educators can use the Career Clusters to organize and develop curriculum, assessments and guidance to provide a broader more durable preparation for students.



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## **AGRICULTURE, FOOD & NATURAL RESOURCES**

This Career Cluster prepares learners for careers in the planning, implementation, production, management, processing and/or marketing of agricultural commodities and services. This includes food, fiber, wood products, natural resources, horticulture, and

other plant and animal products. It also includes related professional, technical and educational services.

Employment opportunities will continue to increase for those who provide and market an expanding array of food, forest, and veterinary medical consumer products to a growing world population. Continued globalization of the food, agricultural and natural resources system will increase opportunities for graduates who understand the socio-economic factors that define international markets. Graduates who know how to satisfy the diverse consumer needs and preferences in different cultures, and who have the language skills to communicate effectively, will have the best opportunities to be employed by the growing number of multinational businesses.

### **The Seven Pathways**

1. Food Products & Processing Systems
2. Plant Systems
3. Animal Systems
4. Power, Structural & Technical Systems
5. Natural Resource Systems
6. Environmental Service Systems
7. Agribusiness Systems

### **Sample Occupations**

- Food Scientist
- Environmental Engineer
- Horticulturist
- Animal Scientist
- Biochemist
- Veterinarian Assistant

## **ARCHITECTURE & CONSTRUCTION**

This Career Cluster prepares learners for careers in designing, planning, managing, building and maintaining the building environment. People employed in this cluster work on new structures, restorations, additions, alterations and repairs.

Architecture and construction comprise one of the largest industries in the United States. Based on the latest statistics, this career cluster has 13.8 million jobs. In the next few years, many new jobs will be added and many employment opportunities will result from the need to replace experienced workers who leave jobs.

### **The Three Pathways**

1. Design/Pre-Construction
2. Construction
3. Maintenance/Operations

### **Sample Occupations**

- Contractor
- Architect
- Electrician
- Heavy Equipment Operator
- Carpenter
- Plumber

## **ARTS, A/V TECHNOLOGY & COMMUNICATIONS**

Broadly, individuals that work in the AV communications industry manufacture, sell,

rent, design, install, integrate, operate, and repair the equipment of audiovisual communications. They are involved in the presentation of sound, video, and data to groups in such venues as corporate boardrooms, hotels, convention centers, classrooms, theme parks, stadiums, and museums. The major activity sectors in the AV communications industry are distributive service firms (AV dealers, rental companies, consultants, designers, and related firms), manufacturers of AV presentations and communications products, and large end-users.

Most observers expect the job growth rate within AV industries to be at 20-30% for the foreseeable future. In just the AV systems technician field, the industry could expect to add 20,600 jobs annually.

### **The Six Pathways**

1. Audio/Video Communications Technology
2. Broadcasting, Film & Journalism
3. Performing Arts
4. Printing Technology
5. Telecommunications
6. Visual Arts

### **Sample Occupations**

- Actor
- Video Producer
- Journalist
- Audio Engineer
- Telecommunications Technologist
- Printing/Graphics Technologist

## **BUSINESS, MANAGEMENT & ADMINISTRATION**

The Business, Management and Administration Cluster prepares learners for careers in planning, organizing, directing and evaluating business functions essential to efficient and productive business operations. Career opportunities are available in every sector of the economy and require specific skills in organization, time management, customer service and communication.

The business management and administration services industry is projected to be one of the fastest growing through the year 2008. Nearly half of all jobs are in managerial and professional occupations, and nearly one-fourth of all workers are self-employed. The business management and administration services industry is one of the highest-paying industries. In the next few years, many new jobs will be added and many openings will result from the need to replace experienced workers who leave jobs.

### **The Six Pathways**

1. Management
2. Business Financial Management & Accounting
3. Human Resources
4. Business Analysis
5. Marketing

### **Sample Occupations**

- Human Resource Administrator
- Administrative Specialist
- Financial Analyst
- International Trade Manager
- Entrepreneur
- Accountant

## 6. Administration & Information Support

### **EDUCATION & TRAINING**

This Career Cluster prepares learners for careers in planning, managing and providing education and training services, and related learning support services. Millions of people each year prepare for careers in education and training in a variety of settings that offer academic instruction, vocational and technical instruction, and other education and training services.

A growing emphasis on improving education and making it available to more Americans will increase the overall demand for workers in the Education and Training Cluster. Employers are expected to devote greater resources to job-specific training programs in response to the increasing complexity of many jobs, the aging of the work force, and technological advances that can leave employees with obsolete skills. This will result in particularly strong demand for training and development specialists across all industries.

#### **The Three Pathways**

1. Teaching and Training
2. Professional Support Services
3. Administration and Administrative Support

#### **Sample Occupations**

Teacher  
Principal  
School Counselor  
College Professor  
Corporate Trainer  
Coach

### **FINANCE**

The Finance Cluster prepares learners for careers in financial and investment planning, banking, insurance and business financial management. Career opportunities are available in every sector of the economy and require specific skills in organization, time management, customer service and communication.

The finance industry is a critical sector of the United States economy with over six million people employed in finance-related occupations. Although some of the finance occupations project only moderate growth, advances in technology and trends toward direct marketing provide exciting and challenging opportunities for careers across all areas of the cluster. In the next few years, many new jobs will be added and many openings will result from the need to replace experienced workers who leave jobs.

#### **The Four Pathways**

1. Financial and Investment Planning
2. Business Financial Management
3. Banking and Related Services

#### **Sample Occupations**

Stock Broker  
Banker  
Insurance Agent

## GOVERNMENT & PUBLIC ADMINISTRATION

Government affects Americans in countless ways. In fact, virtually every occupation can be found within government. There are, however, some activities that are unique to government. The federal government defends us from foreign aggression; represents American interests abroad; deliberates passes and enforces laws; and administers many different programs. State and local governments pass laws or ordinances and provide vital services to constituents. There are many opportunities in government in every career area. The Government and Public Administration Career Cluster focuses on those careers that are unique to government and not contained in another Career Cluster.

Because of its public nature, the factors that influence federal government staffing levels are unique. The Congress and President determine the government's payroll budget. Each Presidential Administration and Congress has different public policy priorities, which increase levels of federal employment in some programs and decrease federal employment in others. State and local government employment is projected to increase approximately 12 percent during the next decade. Employment growth will stem from a rising demand for services at the state and local levels. An increasing population, along with state and local assumption of responsibility for some services previously provided by the federal government, is fueling the growth of these services.

### The Seven Pathways

1. Governance
2. National Security
3. Foreign Service
4. Planning
5. Revenue and Taxation
6. Regulation
7. Public Management and Administration

### Sample Occupations

Legislator  
City Manager  
Policy/Budget Analyst  
Recreation/Parks Director  
State/Federal Agency Director  
Urban/Regional Planner

## HEALTH SERVICES

Health Services is one of the largest industries in the country, with more than 11 million jobs, including the self-employed. The health services industry includes establishments ranging from small-town private practice physicians who employ only one medical assistant to busy inner city hospitals that provide thousands of diverse jobs. More than half of all non-hospital health service establishments employ fewer than five workers. On the other hand, almost two-thirds of hospital employees were in establishments with more than 1,000 workers.

Wage and employment in the health services industry is projected to increase more than 25 percent through 2010, compared with an average of 16 percent for all industries. Employment growth is expected to account for about 2.8 million new jobs.

### **The Four Pathways**

1. Therapeutic
2. Information
3. Environmental
4. Diagnostic

### **Sample Occupations**

- Pediatrician
- Physical Therapist
- Radiologic Technologist
- Medical Assistant
- Hospital Administrator

## **HOSPITALITY & TOURISM**

The Hospitality and Tourism Cluster prepares learners for careers in the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel-related services. Hospitality operations are located in communities throughout the world.

Travel and tourism is one of the largest and fastest-growing industries in the world. Each year, travel and tourism employers around the world pay more than \$1.6 trillion in wages and salaries and create 12.5 million new jobs. Beginning salaries depend on the employee's skills, education and job level at a hotel, restaurant, tourism office, recreation facility, amusement park or attraction site. Salaries range from entry-level wages to six figures. This industry is known for promoting from within and for its large number of young managers

### **The Four Pathways**

1. Restaurant and Food/Beverage Services
2. Lodging
3. Travel and Tourism
4. Recreation, Amusements and Attractions

### **Sample Occupations**

- Lodging Manager
- Chef
- Travel & Tourism Manager
- Food Service Manager

## **HUMAN SERVICES**

This Career Cluster prepares individuals for employment in career pathways related to families and human needs.

Based on the latest statistics, more than 7.2 million people are employed in human services occupations. Faster than average employment growth, coupled with high turnover, should create numerous employment opportunities.

### **The Five Pathways**

1. Early Childhood Development and Services
2. Counseling and Mental Health Services
3. Family and Community Services
4. Personal Care Services
5. Consumer Services

### **Sample Occupations**

- Social Worker
- Psychologist
- Child Care Worker
- Substance Abuse Specialist
- Employment Specialist
- Psychotherapist

## **INFORMATION TECHNOLOGY**

IT careers involve the design, development, support and management of hardware, software, multimedia and systems integration services. The IT industry is a dynamic and entrepreneurial working environment that has a revolutionary impact on the economy and society. In addition to careers in the IT industry, IT careers are available in every sector of the economy - from Financial Services to Medical Services, Business to Engineering and Environmental Services. Anyone preparing for an IT career should have a solid grounding in math and science.

Even in times of economic downturn, there is still a large market for people with IT skills in organizations of all sizes. ITAA expects continued growth opportunities within the IT field.

### **The Four Pathways**

1. Network Systems
2. Information Support & Services
3. Interactive Media
4. Programming/Software Engineering

### **Sample Occupations**

- Software Engineer
- Network Administrator
- Web Designer/Developer
- Database Manager
- Technical Writer
- Multimedia Producer

## **LAW, PUBLIC SAFETY & SECURITY**

The Law, Public Safety and Security Cluster helps prepare students for careers in planning, managing, and providing legal, public safety, protective services and homeland security, including professional and technical support services.

Renewed national interest in public safety and security should help expand opportunities for employment in the Law, Public Safety and Security Cluster. Numerous job openings will stem from employment growth attributable to the desire for increased corporate, industrial and homeland security. Also, a more security-conscious society and concern about drug-related crimes should contribute to the increasing demand.

### **The Five Pathways**

1. Correction Services
2. Emergency and Fire Management Services
3. Security and Protective Services
4. Law Enforcement Services
5. Legal Services

### **Sample Occupations**

Attorney  
Fire Fighter  
Police Officer  
Judge  
Paramedic

## **MANUFACTURING**

All careers in Manufacturing require you to have a strong mechanical ability, specialized skills, communication skills and computation skills. You will be required to apply problem solving, make decisions, and work in a team environment. Preparation for careers in Manufacturing must begin in the elementary grades and continue through high school allowing students to gain experience in applied, realtime manufacturing situations. Students will also find it advantageous to participate in a post-high school program that will expand some skills in specific jobs that meet the requirements of the employer.

As technology advances, each worker has the opportunity to produce more, so fewer workers are needed. However, there are excellent opportunities in manufacturing where technology and career pathways provide for satisfying careers.

### **The Four Pathways**

1. Production
2. Production Planning and Control
3. Manufacturing Engineering
4. Industrial Maintenance

### **Sample Occupations**

Machinist  
Manufacturing Engineer  
Automated Process Technician  
Production Engineer/Technician  
Welding Technician  
Quality Technician

## **MARKETING, SALES & SERVICE**

This Career Cluster prepares learners for careers in planning, managing and performing marketing activities to reach organizational objectives.

According to the latest statistics, there are 16 million jobs in sales and related occupations. Advertising, marketing, promotions, public relations and sales managers hold more than 700,000 jobs. Over 300,000 high-paying management positions are likely to be available over the next decade. Employment opportunities for retail salespeople are expected to be good. Individuals with a college degree or computer skills will be sought for managerial positions in sales, logistics, management information systems, marketing and e-marketing.



### **The Seven Pathways**

1. Management and Entrepreneurship
2. Professional Sales and Marketing
3. Buying and Merchandising
4. Marketing Communications and Promotion
5. Marketing Information Management and Research
6. Distribution and Logistics
7. E-Marketing

### **Sample Occupations**

- Sales Associate
- Interior Designer
- Marketing Director
- Buyer
- Real Estate Broker
- Customer Service Representative

## **SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS**

A career in science, technology, engineering or mathematics is exciting, and ever-changing. Learners who pursue one of these career fields will be involved in planning, managing, and providing scientific research and professional and technical services including laboratory and testing services, and research and development services.

Given the critical nature of much of the work in this cluster, job possibilities abound even in times of economic downturn. More scientists, technologists and engineers will be needed to meet environmental regulations and to develop methods of cleaning up existing hazards. A shift in emphasis toward preventing problems rather than controlling those that already exist, as well as increasing public health concerns, also will spur demand for these positions.

### **The Two Pathways**

1. Science and Mathematics
2. Engineering and Technology

### **Sample Occupations**

- Chemical Engineer
- Mathematician
- Bio Technologist
- Electrical Engineer
- Biologist
- Oceanographer

## **TRANSPORTATION, DISTRIBUTION & LOGISTICS**

This Career Cluster exposes students to careers and businesses involved in the planning, management, and movement of people, materials, and products by road, air, rail and water. It also includes related professional and technical support services such as infrastructure planning and management, logistic services, and the maintenance of mobile equipment and facilities.

Transportation, distribution and logistics are a critical sector of the United States economy. Almost 10 million people are employed in transportation or transportation-related occupations. High-growth industry and career specialties offer high-tech, high-wage opportunities. This industry sector represents over 11 percent of the gross

domestic product, and is among the fastest growing of all sectors. There will be a growing number of career opportunities in a variety of professional and technical occupations as well as high paid, entry-level occupations that can provide career advancement opportunities.

### **The Seven Pathways**

1. Transportation Operations
2. Logistics Planning and Management
3. Warehousing and Distribution Center Operations
4. Facility and Mobile Equipment Maintenance
5. Transportation Systems/ Infrastructure Planning, Management and Regulation
6. Health, Safety and Environmental Management
7. Sales and Service

### **Sample Occupations**

- Pilot
- Automotive Technician
- Logistics Manager
- Flight Attendant
- Warehouse Manager
- Truck Driver
- Urban/Regional Planner