



Agriculture and Natural Resources Industry Sector

Agriculture is one of California's largest and most vital industries, which generates about \$32 billion in products and more than \$125 billion of economic impact each year. Ten percent of California workers are engaged in agriculture and related occupations. Because the demand for agricultural specialists throughout the state in both urban and rural areas is high, there are more job openings than there are qualified applicants. Within the Agriculture and Natural Resources pathways, workers in some of the fastest-growing and/or highest-wage occupations in California include agricultural marketing and sales personnel, agricultural engineers, laboratory and research technicians, animal reproduction specialists, environmental scientists, landscape and turf managers, and pest management specialists.

Students in the Agriculture and Natural Resources industry sector are engaged in an instructional program that integrates academic and technical preparation, with a focus on career awareness, career exploration, and skill preparation in seven pathways. The pathways emphasize real-world, occupationally relevant experiences of significant scope and depth in Agricultural Business, Agricultural Mechanics, Agriscience, Animal Science, Forestry and Natural Resources, Ornamental Horticulture, and Plant and Soil Science. Integral components of classroom and laboratory instruction, supervised agricultural experience projects, and leadership and interpersonal skill development prepare students for continued training, advanced educational opportunities, and entry into a career.

Agriculture and Natural Resources Industry Sector Pathways:

- *Agricultural Business*
- *Agricultural Mechanics*
- *Agriscience*
- *Animal Science*
- *Forestry and Natural Resources*
- *Ornamental Horticulture*
- *Plant and Soil Science*

Entry Level Careers

(with high school diploma)

Nursery Worker
Forestry Aide
Crop Inspector
Irrigator
Milker
Park Aide
Gardener/Groundskeeper
Feeder
Ag Supplies Warehouse
Ag Service Technician Trainee
Ag Equipment Operator
Ag Business Clerk
Farmworkers and Laborers, Crop

Technical Level Careers

(with AA or AS degree or certificate)

Land Use Planning Technician
Field Representative Technician
Animal Health Technician
Greenhouse Grower/Manager
Soil Conservation Technician
Landscape Designer
Forestry Technician
Artificial Inseminator
Ag Sales and Service Technician
Ag Import/Export Technician
Ag Equipment Service
Ag Equipment Set-up Foreperson
Farm Equipment Mechanics

Professional Level Careers

(with BS or BA degree)

Soil/Water Manager
Agronomist
Country Planner/Landscape
Animal Nutritionist
International Ag Pest Control Advisor
Veterinarian
Plant/Animal Geneticist
Forester/Ranger
Architecture
Ag Teacher/Farm/Home Advisor
Ag Research/Developer
Ag Engineer
Ag Business Owner/Operator



Arts, Media, and Entertainment Industry Sector

The Arts, Media, and Entertainment industry sector is big business in California. This dynamic sector is relevant statewide, with most of the major employers concentrated in the southern part of the state. It offers jobs that require a vast range of creative and technical knowledge and skills. In a 2004 national study, almost 550,000 businesses employing almost three million people were involved in production and delivery in America's creative industries. Flexibility and adaptability to a rapidly changing professional landscape are key elements to an individual's ultimate success in a career in arts, media, and entertainment. Consequently, most of the professions found in this sector require students to become familiar with information and skills across several different academic disciplines and career pathways as well as within their primary pathway.

The Media and Design Arts career pathway comprises a large number of industry occupations, such as user interface design, digital animation, print design, commercial photography, and cinematography. The Performing Arts pathway focuses on the direct creation of art and entertainment by individual artists and includes professional applications of theatre, dance, and music. And the Production and Managerial Arts pathway focuses on developing the organizational and managerial knowledge and skills needed to bring arts, media, and entertainment to the public as well as on training those who do the behind-the-scene jobs, such as set design, sound design, digital modeling, film editing, and camera work. For most of the skilled and semiskilled occupations in this industry sector, postsecondary education and training are expected.

Arts, Media, and Entertainment Industry Sector Pathways:

- *Media and Design Arts*
- *Performing Arts*
- *Production and Managerial Arts*

Entry Level Careers

(with high school diploma)

Visual Artist
Photographers Assistant
Lighting Technician
Model
Makeup Artist
Electronic Equipment Operator
Camera Technician
Broadcast Technician
Sound Technician
Stagehand
Disc or Video Jockey
Actor
Announcer
Voice-over Artist
Stunt Person
Dolly Grip
Focus Puller

Technical Level Careers

(with AA or AS degree or certificate)

Stage Manager
Recording Studio Assistant
Special Effects Coordinator
Web Designer
Prop Maker
Photographer
Graphic Designer/Artist
Film Maker
Camera Operator
Screen Writer
Photojournalist
Music Minister
Radio/Television Broadcaster
Gaffer
Negative Cutter
Key Production Grip

Professional Level Careers

(with BS or BA degree)

Architect
Choreographer
Industrial Designer
Foreign Language Interpreter
Publisher
Music Teacher
Technical Writer
Columnist
Sound Engineer
Medical Scientific Illustrator
Media and Design Arts Instructor
Music Accompanist
Music Director/Conductor
Choreographer
Producer
Sound Design Editor
Visual Effects Coordinator



Building Trades and Construction Industry Sector

A strong demand for workers continues in the Building Trades and Construction industry sector, and that demand increases as populations, businesses, and local economies expand. According to the U.S. Bureau of Labor Statistics, construction is among the top ten of the nation's industries, constituting almost 5 percent of the total national gross domestic product. In California, the long-term (2004–14) occupational projection for the Building Trades and Construction industry includes a need to fill 17,790 new jobs and provide 17,920 replacement workers as members of the current workforce retire or leave. In some trades in the state, an increase of more than 30 percent in the number of available jobs is expected over the next 10 years. Nationally, more than one million construction jobs will be created over the next decade, with job categories ranging from laborers to engineers to contractors.

In Building Trades and Construction industry sector classes, activities range from general or exploratory skills to job-specific skills that prepare students to select and pursue career paths through postsecondary training, work experience education, apprenticeships, and postsecondary education. The classes incorporate and apply academic core content to career-related education. These interdisciplinary approaches provide students with strong foundation skills and advanced skills in the career field of their choice, allowing students to exit programs and enter occupations directly or pursue further specialty training.

Building Trades and Construction Industry Sector Pathways:

- *Cabinetmaking and Wood Products*
- *Engineering and Heavy Construction*
- *Mechanical Construction*
- *Residential and Commercial Construction*

Entry Level Careers

(with high school diploma)

Carpenter Apprentice
Cabinetmaking Apprentice
Machine Operator
Draftsman
Electrical Repair Person
Electronic Equipment Installer
Maintenance Technician
Laborer

Technical Level Careers

(with AA or AS degree or certificate)

Electronic Technician
Maintenance Supervisor
Heating/Ventilation/AC (HVAC) Technician
Environmental Materials Technician
Electrician
Construction Supervisor
Computerized Numerical Control Tech
CAD Technician
Building Constructor
Cabinetmaking Journeyman
Automated Control System Technician
Furniture Maker
Production Manager
Iron Worker
Heavy Construction Journeyman
Plumber
Contractor

Professional Level Careers

(with BS or BA degree)

Quality Control Manager
Environmental and Safety Manager
Product Designer
Manufacturing Engineer
Construction Manager
Building Instructor
Architect
Engineer
Designer
Building Trades Instructor
Construction Manager
Business Owner



Education, Child Development, and Family Services Industry Sector

Education, Child Development, and Family Services is one of the fastest-growing industry sectors in the nation. It is projected to increase by nearly 40 percent by 2016, and a large number of employees in this sector will be retiring. According to the U.S. Department of Labor, three of the 10 fastest-growing segments of this industry sector are child care services; individual, family, community, and vocational rehabilitation services; and community and residential elder care services. And through 2012 another career in this sector, teaching, will continue to be one of California's most vigorous areas of employment.

This industry sector includes four interrelated pathways: Child Development, Consumer Services, Education, and Family and Human Services. Each pathway includes a sequence of at least two rigorous courses, beginning with a foundation class that leads to one or more concentration classes and concluding with at least one capstone course. Through successful completion of a career pathway, students gain skills that enable them to enter the workforce at a higher-than-entry-level step. These courses prepare students to succeed in any of the careers related to the pathway.

Education, Child Development, and Family Services Industry Sector Pathways:

- *Child Development*
- *Consumer Services*
- *Education*
- *Family and Human Services*

Entry Level Careers

(with high school diploma)

Child Care Provider
Preschool Aide
After school Program Aide
Consumer Complaint Clerk
Customer Service Representative
Product Demonstrator
Tutor
Recreation Aide
Child Care Worker

Technical Level Careers

(with AA or AS degree or certificate)

Preschool Teacher
Teacher Assistant
Head Start Teacher
Special Education Aide
Parent Educator
Consumer Credit Manager
Property Manager
Consumer Product Tester
Insurance Representative

Professional Level Careers

(with BS or BA degree)

K-12 School Teachers
Librarian
Child Protection Social Worker
Preschool Director
School or Adoption Counselor
Child Psychologist
Certified Financial Planner
Consumer Economist
Consumer Information Specialist
Speech Language Therapist



Energy and Utilities Industry Sector

Because the Energy and Utilities industry sector consists of many different companies and products, skills developed in one segment may be transferable to other segments. The career pathways in this sector emphasize real-world, occupationally relevant experiences of significant scope and depth. Students with skills in specific segments will be prepared to enter local, state, and national employment markets. This sector's career pathways provide career opportunities for persons with varying levels of experience and education, and the sector is forecast to experience significant growth in employment over the next decade, particularly in jobs related to water and sewage systems. In addition, production workers' earnings are significantly higher than those in most other industries.

The Electromechanical Installation and Maintenance pathway provides learning opportunities for students interested in working in production, installation, maintenance, and repair. In this pathway, students learn how to maintain and repair pipelines and power lines, operate and repair plant machinery, and monitor treatment processes. The Energy and Environmental Technology pathway provides learning experiences for students interested in energy production and environmental concerns including how to install, repair, and maintain power-generating stations, gas plants, water treatment plants, and wet-sewage treatment plants. The Public Utilities pathway provides opportunities for students interested in a variety of public utility industries, including but not limited to power plant operation, power distribution and dispatching, and operation of water treatment plants or wastewater plants. The Residential and Commercial Energy and Utilities pathway provides learning opportunities for obtaining, verifying, and maintaining primary financial data and records, including recording the usage of electricity, gas, water, and sewer utilities.

Energy and Utilities Industry Sector Pathways:

- *Electromechanical Installation and Maintenance*
- *Energy and Environmental Technology*
- *Public Utilities*
- *Residential and Commercial Energy and Utilities*

Entry Level Careers

(with high school diploma)

Cable Splicer
Meter Reader
Tower Technician
Solar Installer
Sewer Worker
Public Works Maintenance Worker
Waste Management Worker
Residential Energy Auditor

Technical Level Careers

(with AA or AS degree or certificate)

Heating & Air Conditioning Installer
Solar Technician
Industry Facilities Technician
Power Plant Technician
Utilities Operator
Wind Technician
Journeyman Lineman
Underground Inspector
Generation Dispatcher
Load Forecaster
Instrumentation Control Technician

Professional Level Careers

(with BS or BA degree)

HVAC Technician Engineer
Energy Analyst
Public Works Director
Environmental Engineer
Sustainability Engineer
Cell Scientist
Renewable Program Coordinator



Engineering and Design Industry Sector

The Engineering and Design industry sector provides a strong foundation in engineering and design for students in California. The students are engaged in an instructional program that integrates academic and technical preparation and focuses on career awareness, career exploration, and career preparation in five pathways. To prepare students for the vast scope of job opportunities in this field, middle schools, high schools, regional occupational centers and programs, apprenticeship programs, community colleges, and four-year colleges and universities provide education and training in engineering-related occupations. The demand for engineers in a variety of specializations throughout the state and the nation will remain high.

The five pathways in this sector emphasize real-world, occupationally relevant experiences of significant scope and depth. To prepare students for continued training, advanced educational opportunities, and direct entry to a career, the engineering and design programs offer the following components: classroom, laboratory, and hands-on contextual learning; project-based and work-based instruction; internships, community classroom, and cooperative career technical education; work experience education; and leadership and interpersonal skills development.

Engineering and Design Industry Sector Pathways:

- *Architectural and Structural Engineering*
- *Computer Hardware, Electrical, and Networking Engineering*
- *Engineering Design*
- *Engineering Technology*
- *Environmental and Natural Science Engineering*

Entry Level Careers

(with high school diploma)

Junior Drafter
CAD Technician
Construction Apprentice
Engineering Aide
Drafting Apprentice
Apprentice Electrician
Computer Equipment Installer
Security Equipment Installer

Technical Level Careers

(with AA or AS degree or certificate)

Drafter/Designer
Plan Checker
Surveyor
Estimator
Electrical Engineering Technician
Mechanical Engineering Technician
Laboratory Technician
Civil Engineering Technician
Chemical Engineering Technician
Aerospace Engineering Technician
Architectural Drafters
Telecommunications Technician
Journeyman Electrician

Professional Level Careers

(with BS or BA degree)

Mechanical Engineer
Aerospace Engineer
Agricultural Engineer
Electrical Engineer
Computer Hardware Engineer
Telecommunications Engineer
Landscape Architect
Materials Engineer
Nuclear Engineer
Architect
Industrial Designer
Civil Engineer
Structural Engineer



Fashion and Interior Design Industry Sector

The Fashion and Interior Design industry sector is a multibillion-dollar enterprise offering a wide variety of careers. Highly sophisticated, it involves market research, brand licensing and intellectual property rights, design, materials engineering, product manufacturing, marketing, and distribution. According to the California Fashion Association, a particularly high demand exists for preproduction jobs involving computerized pattern making and product data management for larger companies. Contributing to the growth in the fashion industry's gross sales is a global focus on the Los Angeles lifestyle involving, for example, apparel, textiles, home furnishings, and furniture; the growing use of international sourcing; and the development of new technologies. And in the interior design industry, employment has been projected to grow by 12 percent through 2012 as demand rises for the interior design of private homes, offices, restaurants, facilities that care for the elderly, and a variety of retail establishments.

This industry sector includes two interrelated pathways—(1) Fashion Design, Manufacturing, and Merchandising; and (2) Interior Design, Furnishings, and Maintenance. Each pathway consists of a coherent sequence of courses that begins with a foundation course, continues through one or more concentration courses, and concludes with a capstone course. Secondary-level instruction in high schools and regional occupational centers and programs is articulated with postsecondary educational programs in private training schools, community colleges, and four-year colleges and universities.

Fashion and Interior Design Industry Sector Pathways:

- *Fashion Design, Manufacturing, and Merchandising*
- *Interior Design, Furnishings, and Maintenance*

Entry Level Careers

(with high school diploma)

Sales Associates
Assistant Store Manager
Showroom Assistant
Cutter
Design Assistant
Sales Representative
Trade Intern
Set Decorator
Floral Designers
Merchandise Displayers
Window Trimmers
Pattern Designer
Fashion Coordinator

Technical Level Careers

(with AA or AS degree or certificate)

Fashion Illustrator
Visual Merchandiser
Fashion Buyer
Stylist
CAD Specialist
Facility and Space Planner
Assistant Designer
Costume Designer
Textile Designer
Drapery/Upholstery Estimator

Professional Level Careers

(with BS or BA degree)

Fashion Designer
Fashion Journalist
Fashion Forecaster
Fashion Merchandise Manager
Interior Designer
Ergonomic Consultant
Preservationist
Lighting Specialist



Finance and Business Industry Sector

The Finance and Business industry sector, a vital contributor to the U.S. economy, employs more than six million people in related occupations. In all areas of this sector, advances in technology and trends toward direct marketing provide for many fast-growing career opportunities. For example, employment of accountants and auditors is expected to grow at a rate about equal to the average for all other occupations, and career opportunities in banking are expected to increase at a greater rate than normal as a result of the expansion of banking and investment institutions. Because of market globalization and an increasing demand for investment advice, employment in financial management will also continue to grow.

The sector includes three pathways. Accounting Services provides instruction in developing and utilizing general accounting systems; Banking and Related Services focuses on the fundamentals of lending and banking regulations; and Business Financial Management helps develop skills in investment analysis and guidance. Students interested in pursuing one or more of these pathways should develop knowledge and skills in mathematics, communications, and technology.

Finance and Business Industry Sector Pathways:

- *Accounting Services*
- *Banking and Related Services*
- *Business Financial Management*

Entry Level Careers

(with high school diploma)

Account Clerk
Audit Clerk
Bookkeeper
Payroll Clerk
Bank Teller
New Account Clerk
Account Collector
Credit Clerk
Claims Clerk
Insurance Appraiser
Records Processor
Client Services Clerk
Brokerage Clerk

Technical Level Careers

(with AA or AS degree or certificate)

Account Specialist
Cost Estimator
Tax Preparer
Associate Accountant
Administrative Assistant
Office Manager
Loan Specialist
Credit Analyst
Claims Examiner
Tax Examiner
Treasurer
Underwriting Assistant
Insurance Claims Agent

Professional Level Careers

(with BS or BA degree)

Bank Officer
Stock Broker
Real Estate Broker
Consultant
Business Teacher
Accountant
Auditor
Budget Analyst
Controller
Appraiser
Bank Manager
Escrow Officer
Economist
Financial Planner
Securities Manager



Health Science and Medical Technology Industry Sector

Health Science and Medical Technology continue to be one of the fastest-growing industry sectors in California, offering numerous opportunities and benefits. Of the more than 300 careers within this sector, about 41 percent require professional-level preparation; about 33 percent, technical-level preparation; and 26 percent, assistant-level preparation. The Health Science and Medical Technology pathways and careers offer options to match a variety of the aptitudes, interests, abilities, and academic achievement of students. Wages and salaries are projected to increase by 27 percent through 2014, and employment is expected to account for about 3.6 million new jobs—19 percent of all jobs to be added to the economy by 2014.

The career pathways are grouped in functions that have a common purpose and similar attributes: Biotechnology Research and Development, Diagnostic Services, Health Informatics, Support Services, and Therapeutic Services. Standards for each career path build on and continue the Health Science and Medical Technology foundation standards, providing more complexity, rigor, and career specificity. And each career pathway includes standards needed for all careers within that pathway.

Health Science and Medical Technology Industry Sector Pathways:

- *Biotechnology Research and Development*
- *Diagnostic Services*
- *Health Informatics*
- *Support Services*
- *Therapeutic Services*

Entry Level Careers

(with high school diploma)

Physical Therapy Assistant
Respiratory Care Practitioner
Optometric Assistant
Medical Assistant
Medical Office Secretary
Home Health Aide
Laboratory Assistant
Pharmacy Aide
Dental Assistant
Medical Equipment Preparers
Personal and Home Care Aide
Psychiatric Aides
Veterinary Assistants
Laboratory Animal Caretakers
Biotechnology Assistant
Central Supply Aide
Geriatric Assistant

Technical Level Careers

(with AA or AS degree or certificate)

Certified Nursing Assistant - CNA
Pharmacy Technician
Registered Nurses (2 yr)
Paramedic
Operating Room Technician
Medical Records Technician
Emergency Medical Technician - EMT
Licensed Vocational Nurse - LVN
Radiology Technologist
Dental Lab Technician
Respiratory Therapists
Cardiovascular Technologists
Dental Hygienist
Diagnostic Medical Sonographers
Biomedical Technician
Environmental Services Technician
Gerontologist

Professional Level Careers

(with BS or BA degree)

Surgeons
Speech-Language Pathologists
Registered Nurses (4 yr)
Pharmacists
Physicians
Orthodontists
Nurse Practitioner
Anesthesiologists
Athletic Trainers
Dietitians and Nutritionists
Clinical Trials Researcher
Biomedical Chemist
Geneticist
Health Services Administrator
Industrial Hygienist
Materials Management Supervisor
Medical/Public Health Social Workers



Hospitality, Tourism, and Recreation Industry Sector

The Hospitality, Tourism, and Recreation industry sector includes California's fastest-growing industries: travel, recreation, and food and hospitality. Nearly 900,000 jobs are directly supported by the travel industry, making tourism the state's third largest employer; and the industry is expected to expand by more than 2 percent per year through 2014. Food service occupations, ranging from food production and service to the study of human nutrition and wellness, bring in over \$970 million a day and account for 8 percent of jobs worldwide. The California restaurant industry is the largest employer in the state, providing 957,000 jobs, with annual projected sales of \$51.5 billion and sales tax revenues of \$4 billion. Students choosing a career in this industry sector are eligible for positions throughout the world, with potential for advancement and ready availability of continuing employment. To support this burgeoning sector, colleges and universities throughout California and the United States offer courses and degree programs in this field.

This sector encompasses three distinct yet related career pathways: Food Science, Dietetics, and Nutrition; Food Service and Hospitality; and Hospitality, Tourism, and Recreation. Each pathway includes a coherent sequence of courses, starting with a foundation course that leads to one or more concentration courses and a capstone course. The concentration courses focus on technical preparation, including career awareness and exploration, which is based on industry-approved curricula. The necessary knowledge and skills are acquired within a sequential, standards-based program that encompasses hands-on, project-based, and work-based instruction as well as leadership development, internship, mentoring, work experience, job shadowing, and cooperative career technical education.

Entry Level Careers

(with high school diploma)

Youth Recreation Leader
Hotel Guest Services
Food Preparation Worker
Food and Beverage Wait Staff
Dietary Aide
Food Product Tester
Quality Control Technician
Line Cook
Food Expediter
Bakery Helper
Camp Counselor
Recreation Leader
Spa Attendant
Front Desk Worker

Technical Level Careers

(with AA or AS degree or certificate)

Food Inspector
Dietetic Technician
Food Production Chemist
Food and Beverage Director
Food Service Manager
Food Designer
Social Director
Tour Guide/Manager
Hotel Concierge
Convention Planner
Chef/Cook/Baker
Caterer
Travel Agent
Concert Promoter
Event/Wedding Planner
Flight Attendant
Club Manager

Professional Level Careers

(with BS or BA degree)

Registered Dietician
Food Technologist
Food Product Developer
Sous/Executive Chef
Food and Beverage Analyst
Food Service Director
Food Stylist
Visitor & Convention Bureau Director
Registered Dietician
Non-Profit Association
Museum Director/Curator
Club/Resort/Hotel Manager
Theme Park Director
Convention Coordinator
Travel Company Manager

Hospitality, Tourism, and Recreation Industry Sector Pathways:

- Food Science, Dietetics, and Nutrition
- Food Service and Hospitality
- Hospitality, Tourism, and Recreation



Information Technology Industry Sector

Information Technology (IT) careers involve the design, development, support, and management of hardware, software, multimedia, and systems integration services. The IT industry offers a dynamic and entrepreneurial working environment that has had a revolutionary impact on the economy and on society. IT careers are available not only in the IT industry but also in every other sector of the economy, from Agriculture and Natural Resources to Transportation. Employment for IT support specialists is expected to increase faster than the average for all other occupations (by 18.5 percent by 2012) as organizations continue to adopt and integrate increasingly sophisticated technology. The IT sector contains some of the fastest-growing industries, such as software publishing, Internet publishing, service providers, Web search portals, and data-processing services.

Information Technology careers are divided into four pathways: Information Support and Services, the foundation of all successful business organizations today; Media Support and Services, involving the creation, design, and production of multimedia products and services; Network Communications, involving network analysis, planning, and implementation; and Programming and Systems Development, involving the design, development, and implementation of computer systems and software.

Information Technology Industry Sector Pathways:

- *Information Support and Services*
- *Media Support and Services*
- *Network Communications*
- *Programming and Systems Development*

Entry Level Careers

(with high school diploma)

Help Desk Specialist
Computer Repairer
LAN Maintenance Technician
Production Technician
Web Page Developer
Computer Operator
Word Processing Operator

Technical Level Careers

(with AA or AS degree or certificate)

Computer Support Specialist
LAN Support Technician
Software/Hardware Installer
Telecommunications Specialist
Network Administrator
Data Communications Specialist
Computer Graphic Artist
Desktop Publisher
Multimedia Specialist
Web Designer
Webmaster
Database Administrator
Technical Writer

Professional Level Careers

(with BS or BA degree)

Computer Programmers
Computer Security Specialist
Database Administrators
Software Engineers
Information Systems Architect
Telephony System Administrator
Tower Project Coordinator
Systems Engineer
Network Analyst
Graphic Designer
Multimedia Artist/Animator
Web Architect
Corporate Communications Manager



Manufacturing and Product Development Industry Sector

The Manufacturing and Product Development industry sector is an important part of California's economy, producing a wide range of products, including computers, communications equipment, electronic components, high-tech instruments, apparel, metal products, chemicals, plastics, aircraft, ships, missiles and space products, and search and navigation equipment. Both large and small manufacturers are important participants in the electronics, multimedia, and other emergent regional industrial clusters.

This sector provides a foundation in manufacturing processes and systems for all industrial and technology education students in California. These students are engaged in an instructional program that integrates technical preparation and academics with career awareness, career exploration, and skill preparation in four pathways: Graphic Arts Technology, Integrated Graphics Technology, Machine and Forming Technology, and Welding Technology. Manufacturing and Product Development pathways emphasize real-world, occupationally relevant experiences of significant scope and depth in manufacturing and graphic communication. To prepare students for the vast range of career opportunities in manufacturing and product development, middle schools, high schools, regional occupational centers and programs, apprenticeship programs, community colleges, and four-year colleges and universities provide educational and training programs.

Manufacturing and Product Development Industry Sector Pathways:

- *Graphic Arts Technology*
- *Integrated Graphics Technology*
- *Machine and Forming Technology*
- *Welding Technology*

Entry Level Careers

(with high school diploma)

Desktop Publishing
Graphic Art Equipment Operator
Special Effects Animator
Web Designer
Pre-Press Designer
Machine Operator
Maintenance Mechanic
Assembler
Installation Apprentice
Bindery Workers
Welder
Cutter, Solder, Brazier
Plastics Assembler
Foundry Helper
Furniture Finishers
Upholsterers
Painting, Coating, and Decorating Workers

Technical Level Careers

(with AA or AS degree or certificate)

Commercial Photographer
Production Manager
Graphic Artist Journeyman
Advertising Design
Multimedia Digital Editor
CNC Programmer
Machine Technician
Tooling Journeyman
Industrial Electrician
Cabinetmakers and Bench Carpenters
Tool and Die Makers
Power Plant Operators
Fabric and Apparel Pattern Makers
Certified Welder
Boilermaker
Foundry Core, Pattern Maker
Composite Fabricator

Professional Level Careers

(with BS or BA degree)

Publisher, Editor
Production Developer
Industrial Technology Instructor
Network Engineer
Publications Management
Multimedia Author
Manufacturing Engineer
Mechanical Engineer
Tooling Engineer
Design Engineer
Quality Control Inspector
Pressurized Vessel Engineer
Fabrication Designer



Marketing, Sales, and Service Industry Sector

Marketing, the transfer of goods and services among businesses and consumers, affects the economy at every level. According to California occupational employment projections, retail trade will be the fastest-growing industry in the state. And the U.S. Bureau of Labor Statistics projects that sales and related occupations will add two million new jobs nationwide by 2012, growing by 12.9 percent. As businesses in America evolve to compete successfully in the global marketplace, a growing need exists for employees with business expertise and the ability to analyze and respond to emerging trends.

This sector is designed to prepare learners for careers in planning, managing, and performing marketing activities. Included are four career pathways: E-commerce, which provides instruction in using electronic tools to market products and services; Entrepreneurship, which develops skills and abilities to begin and operate a business independently or with other individuals; International Trade, which focuses on understanding the global business environment; and Professional Sales and Marketing, which builds knowledge of the sales process, sales management, and marketing information management.

Marketing, Sales, and Service Industry Sector Pathways:

- *E-commerce*
- *Entrepreneurship*
- *International Trade*
- *Professional Sales and Marketing*

Entry Level Careers

(with high school diploma)

Credit Checkers
Customer Service Representatives
Data Entry Clerk
Telemarketers
Route Salesperson
Stock Clerks, Sales Floor
Postal Service Mail Carriers
Insurance Policy Processing Clerks
Real Estate Sales Agents
Small Business Entrepreneur
Franchisee

Technical Level Careers

(with AA or AS degree or certificate)

Account Supervisor
Copywriter-Designer
E-Commerce Entrepreneur
E-Commerce Marketing Specialist
Forum Manager
Bill and Account Collectors
Credit Authorizers
Statistical Assistants
Travel Agents
Regional Sales Manager
Retail/Wholesale Buyer

Professional Level Careers

(with BS or BA degree)

Brand Manager
E-Commerce Director
Interactive Sales Engineer
Sales Agent, Financial Services
Economist
International Trade Specialist
Marketing Research Analyst
Wholesales Distribution Manager
National Account Manager



Public Services Industry Sector

The U.S. Bureau of Labor Statistics projects increases in employment nationwide through 2014 for all three pathways in the Public Services industry sector. Job openings in community and social services are expected to increase by approximately 21 percent; in legal services, by 16 percent, in protective services, by 14 percent; and in state and local government services, by 11 percent. In California, occupational employment projections also foresee growth in all of this sector's pathways through 2014. Job openings in state and local government services are expected to increase by 17 percent; in community and social services, by 22 percent; in legal services, by 16 percent; and in protective services, by 18 percent. This growth will result from heightened interest in homeland and border security as well as the retirement of workers from the baby-boom generation.

The Public Services industry sector provides a foundation for secondary students in government, public administration, public safety, legal services, and human services. It encompasses three career pathways, Human Services, Legal and Government Services, and Protective Services, which emphasize processes, systems, and services related to serving the public's interest. Knowledge and skills are acquired (1) within a sequential, standards-based program that integrates classroom, laboratory, and project- and work-based instruction; and (2) through internships, community classrooms, work experience, and cooperative career technical education. Pathways in this sector are designed to prepare students for technical training, postsecondary education, and entry to a variety of careers.

Public Services Industry Sector Pathways:

- Human Services
- Legal and Government Services
- Protective Services

Entry Level Careers

(with high school diploma)

Social and Human Service Assistant
Forest Fire Fighters
Security Guards
Animal Control Worker
Foster Care Worker
Elected Official
Parking Enforcement Officer
Legal Clerk

Technical Level Careers

(with AA or AS degree or certificate)

Police Officer
Probation Officers and Correctional
Correctional Officers and Jailers
Police Patrol Officers
Sheriffs and Deputy Sheriffs
Firefighters
Fire Apparatus Engineer
U.S. Customs Officer
Eligibility Worker
Vocational Counselor
Employment and Training Technician
Residential Counselor
Substance Abuse Counselor
Licensed Psychiatric Technician
Mental Health Worker
Paralegals and Legal Assistants
Cosmetologist

Professional Level Careers

(with BS or BA degree)

Federal Marshal
FBI, ATF, DEA Agent
Probation Mediator
Marriage and Family Therapist
Licensed Clinical Social Worker
Family Social Service Worker
Foreign Language Interpreter
Medical/Public Health Social Workers
Mental Health Social Worker
Mental Health Counselor
Attorney
Judge, Magistrate Judge
Anthropologist
Astronomer



Transportation Industry Sector

Transportation plays a crucial role in our society because moving people and goods is central to everything America does. As the Transportation industry sector continues to expand significantly, it will provide employment opportunities for years to come in a vast range of transportation-related occupations. It will also continue to adapt to changing technology and repair techniques as vehicle components and systems become increasingly sophisticated. Examples include developments in rocket technology, super-capacity jet airplanes, hybrid and hydrogen fuel-cell technology affecting automobiles, and diesel trucks that run on bio-diesel or other alternative fuels. This industry also plays an important part in education through financial and in-kind support for training and educating the current and future workforce.

The Transportation industry sector features three career pathways that provide opportunities from entry-level jobs requiring high school diplomas to progressive careers requiring advanced degrees. These pathways emphasize real-world, occupationally relevant experiences of significant scope and depth in Aviation and Aerospace Transportation Services, which includes maintaining aircraft, operating airports, and designing and flying various types of aircraft; Collision Repair and Refinishing, which includes painting, repairing, and refinishing vehicles; and Vehicle Maintenance, Service, and Repair, which includes maintaining, servicing, and repairing light-, medium-, and heavy-duty vehicles.

Transportation Industry Sector Pathways:

- *Aviation and Aerospace Transportation Services*
- *Collision Repair and Refinishing*
- *Vehicle Maintenance, Service, and Repair*

Entry Level Careers

(with high school diploma)

Mechanic's Assistant
Lube Technician
Parts and Sales Counter Clerk
Automotive Body and Paint Repairer
Tire Repairers and Changers
Service Station Attendants
Bus Driver, School
Industrial Truck and Tractor Operators
Truck Driver, Light or Delivery Service
Taxi Drivers and Chauffeurs
Flight Attendant
Porter
Aircraft Detailer
Ground Support Crew

Technical Level Careers

(with AA or AS degree or certificate)

Bus and Truck Mechanics
Automotive Master Mechanic
Diesel Engine Specialist
Motorcycle Mechanics
Auto Glass Installer
Dispatcher
Service Writer
Licensed Smog Technician
Avionics Technicians
Airframe and Power Plant Technician
Aircraft Mechanics/Service Technicians
Air Traffic Controllers
Commercial Pilots
Ship Engineers
Ship and Boat Captains

Professional Level Careers

(with BS or BA degree)

Ship Engineers
Airline Pilots, Copilots
Flight Engineers
Astronaut
Insurance Claims Adjuster
Shop Manager
Fleet Manager
Parts and Service Manager
Automotive Corp. Service Representative