



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

Forestry and Natural Resources Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> Introduction to Agriculture 	<ul style="list-style-type: none"> Agricultural Biology Integrated Agricultural Science 	<ul style="list-style-type: none"> Forestry Natural Resource Management Rural Recreation Wildlife/Fisheries Management 	<ul style="list-style-type: none"> Park Ranger Aide Soil Conservation Aide Wilderness Firefighter 	<ul style="list-style-type: none"> Hunting Preserve Manager Surveying Technician Tree Farm Supervisor 	<ul style="list-style-type: none"> Aquatic/Game Biologist Soil Conservationist State Park Manager

Ornamental Horticulture Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> Introduction to Agriculture Introduction to Ornamental Horticulture 	<ul style="list-style-type: none"> Agricultural Biology Floriculture Integrated Agricultural Science Nursery/Greenhouse Production 	<ul style="list-style-type: none"> Advanced Ornamental Horticulture Irrigation and Water Management Landscape Design and Maintenance Turf and Golf Management 	<ul style="list-style-type: none"> Landscape Equipment Operator Nursery Sales Associate Tree Trimmer and Pruner 	<ul style="list-style-type: none"> Floral Designer Garden Equipment and Supplies Dealer Landscape Contractor+ 	<ul style="list-style-type: none"> Entomologist Greenhouse and Nursery Manager Landscape Architect+

Plant and Soil Science Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> Introduction to Agriculture 	<ul style="list-style-type: none"> Agricultural Biology Integrated Agricultural Science Plant and Soil Science 	<ul style="list-style-type: none"> Agricultural Entomology and Pest Control Crop Science Environmental Science Viticulture 	<ul style="list-style-type: none"> Crop Farmer Field Assistant Insect Monitor/Collector 	<ul style="list-style-type: none"> Field Representative Tissue Culture Technician Viticulturist 	<ul style="list-style-type: none"> Agriculture Association Manager Integrated Pest Management Specialist Pest Control Advisor+

*Sample CTE Courses are from the Career Technical Education Framework for California Public Schools (California Department of Education: 2007, <http://www.cde.ca.gov/re/pn/fd/>)

**Visit ASSIST (www2.assist.org/browseAreas.do) for community college and UC/CSU information and California Career Zone (www.cacareerzone.org) for occupation information.

+This occupation requires certification or licensure.

Related Career Technical Student Organization: FFA (<http://www.calaged.org>)

Additional Industry Sector information available through the California Central Valley Consortium Agricultural Education Tech Prep (<http://www.agedtechprep.com/>).

Agricultural Business Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> Introduction to Agriculture 	<ul style="list-style-type: none"> Agricultural Biology Agricultural Computers Animal Science Integrated Agricultural Science Ornamental Horticulture Plant Science 	<ul style="list-style-type: none"> Agricultural Business Management Agricultural Economics and Policy Agricultural Sales and Service 	<ul style="list-style-type: none"> Agricultural Lending Office Clerk Agricultural Retail Salesperson Equipment Parts Salesperson 	<ul style="list-style-type: none"> Customer Service Representative Farm Accountant Farm Realtor/Appraiser 	<ul style="list-style-type: none"> Agricultural Commodity Broker+ Agricultural Sales and Marketing Manager Agricultural Supplies Purchasing Agent/Buyer

Agricultural Mechanics Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> Introduction to Agricultural Mechanics Introduction to Agriculture 	<ul style="list-style-type: none"> Advanced Agricultural Mechanics Agricultural Small Engines Agricultural Welding 	<ul style="list-style-type: none"> Agricultural Fabrication/Construction Agricultural/Farm Power and Equipment 	<ul style="list-style-type: none"> Farm Equipment Operator Farm Equipment Parts Person Welder 	<ul style="list-style-type: none"> Equipment Fabricator Equipment Service Technician Heavy Equipment Operator 	<ul style="list-style-type: none"> Agricultural Engineer Agricultural Mechanics Teacher+ Irrigation Engineer

Agriscience Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> Introduction to Agriculture 	<ul style="list-style-type: none"> Agricultural Biology Agriscience 	<ul style="list-style-type: none"> Advanced Plant and Animal Science Agricultural Biotechnology Agricultural Business Management 	<ul style="list-style-type: none"> Laboratory Aide Laboratory Animal Caretaker Plant Propagator 	<ul style="list-style-type: none"> Animal/Plant Laboratory Technician Food Processing Technician Quality Assurance Specialist 	<ul style="list-style-type: none"> Agricultural Science Teacher+ Biotechnology Specialist Plant/Animal Geneticist

Animal Science Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> Introduction to Agriculture 	<ul style="list-style-type: none"> Agricultural Biology Animal Science 	<ul style="list-style-type: none"> Agricultural Biotechnology Animal and Plant Physiology Veterinary Technician 	<ul style="list-style-type: none"> Farm and Ranch Assistant Feed Store Clerk Veterinary Hospital Assistant 	<ul style="list-style-type: none"> Breeding Technician+ Livestock Feed Sales Meat Inspector 	<ul style="list-style-type: none"> Animal Nutritionist Processing Plant Manager Veterinarian+

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