2025 – 2026

PROGRAM GUIDE

AGRICULTURE, FOOD, AND NATURAL RESOURCES CLUSTER

AND

AFNR MIDDLE SCHOOL

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Agriculture, Food, and Natural Resources Cluster

This cluster prepares students for employment in career pathways that relate to the $70 billion plus industry of agriculture. The mission of agriscience education is to prepare students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber and natural resource industries. There are six program areas in this cluster: General Agriscience, Animal Science, Plant Science, Environmental and Natural Resources, Industrial Agriscience and Middle School. Extended learning experiences to enrich and enhance instruction are reinforced through learner participation in the career and technical student organization related to agriscience education. Project-based learning experiences, otherwise known as a Supervised Agriculture Experience (SAE) are an integral part of agriscience education.

**Courses highlighted in yellow are shared with other clusters. See "Shared Courses" table on page 7 for additional details.

Career Pathway Program	Animal Science Program (Must teach three courses from this program list within two years) This program is designed to provide students with an understanding of livestock management, veterinary science, poultry science, equine science, and food processing.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	In Demand Occupations
18003G1003	Advanced Agriscience	• Adult Beef Quality Assurance (The following three areas required): 1. Cow/Calf 2. Stocker/Backgrounder 3. Feedyard • American Meat Science Association (AMSA) Food Safety and Science Certification • American Meat Science Association (AMSA)Meat Evaluation Certification • Aquaculture Training and Online Learning (ATOLL) Aquaculture or Aquaponics • Biotechnician – Skills for Success • Drone Operator – Skills for Success • Elanco Fundamentals of Animal Science Certification • Elanco Veterinary Medical Applications Certification • FAA Part 107 • Forklift – Skills for Success • MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments: 1. Safety 2. Quality Practices & Measurement 3. Manufacturing Processes & Production 4. Maintenance Awareness • NCCER Core (Module 6 is an elective and not required for CRI) • National Collegiate Livestock Coaches Association (NCLCA) Principles of Livestock Selection and Evaluation • National Horse Judging Team Coaches Association (NHJTCA) Equine Management and Evaluation • Skid Steer – Skills for Success • Veterinarian Assistant – Skills for Success	• Ag Field Service Representative • Agricultural Equipment Operators • Agricultural Sales • Agricultural Technician • Animal Caretakers • Animal Scientist • Animal Breeder • Artificial Insemination Technician • Biological Technician • Farm Products Purchasing Agent • Farm Worker • Farmers, Ranchers, and Other Agricultural/Aquacultural Managers • Farmworkers, Farm, Ranch, and Aquacultural Animals • Food Quality Assurance • Food Science Technician • Graders and Sorters, Agricultural Products • Laborers and Freight, Stock, and Material Movers, Hand • Livestock Manager • Non-Farm Animal Worker • Poultry Operator • USDA Inspector • Veterinarian • Veterinary Technician • Zoologist and Wildlife Biologist
18004G1001	Agribiology – Science credit eligible		
18401G1000	Agricultural and Biosystems Engineering		
18402G1001	Agricultural Industrial Maintenance		
18306G1002	Aquaculture Science – Science credit eligible		
18306G1003	Aquatic Biology		
18998G1000	Career Pathway Project in AFNR		
18997G1000	CTE Lab in AFNR		
18104G1000	Equine Science		
19254G1000	Food Safety and Microbiology – Science credit eligible		
18003G1001	Fundamentals of Agriscience		
18998G1050	Internship in AFNR		
18501G1002	Introduction to Animal and Dairy Science		
18105G1012	Introduction to Veterinary Science		
18402G1000	Poultry Industrial Maintenance		
18101G1000	Poultry Science		
18105G1022	Veterinary Science		

Career Pathway Program	Environmental and Natural Resources Program (Must teach three courses from this program list within two years) This program is designed to provide students with an understanding of the forestry and wildlife science and management of natural resources.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**In Demand Occupations**
18004G1001	Agribiology – Science credit eligible	• Biotechnician – Skills for Success	• Agricultural Equipment Operators
18401G1000	Agricultural and Biosystems Engineering	• Bulldozer – Skills for Success	• Agricultural Technician
18402G1001	Agricultural Industrial Maintenance	• Drone Operator – Skills for Success	• Biological Technician
18998G1000	Career Pathway Project in AFNR	• Ducks Unlimited Ecology Conservation and Management Certification	• Environmental Engineer
18997G1000	CTE Lab in AFNR	• Excavator Operator – Skills for Success	• Environmental Engineering Technicians
18502G1005	Dendrology		• Environmental Science and Protection Technicians, Including Health
18504G1000	Environmental Management – Science credit eligible	• FAA Part 107	• Environmental Science Teachers, Postsecondary
18501G1001	Fish and Wildlife Management	• Forestry Worker Certification	• Fallers
18502G1001	Forestry	• Integrated Pest Management Certification	• Fishing and Hunting Workers
18402G1002	Forestry Industrial Maintenance	• Land Survey Helper – Skills for Success	• Forest and Conservation Technicians Conservation Officer
18003G1001	Fundamentals of Agriscience	• MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments:	• Forester
18003G1002	Intermediate Agriscience	1. Safety	• Hazardous Materials Removal Workers
18998G1050	Internship in AFNR	2. Quality Practices & Measurement	• Hunters and Trappers
18502G1002	Urban Forestry	3. Manufacturing Processes & Production	• Geological/Hydrological Technicians
18502G1006	Wildland Firefighting and Controlled Fire	4. Maintenance Awareness	• Lab Technician
		• NCCER Core (Module 6 is an elective and not required for CRI)	• Logger
		• Nursery & Landscape Worker	• Logging Equipment Operators
		• Sawmill Worker Credentialing Program	• Natural Science Manager
		• Skid Steer – Skills for Success	• Pesticide Handlers, Sprayers, and Applicators Vegetation.
		• Tree Surgery (TS) Permit	• Professional Fisherman
		• Urban Forestry Technician	• Recreation Worker
		• Water Treatment Operator Grade 2 – Skills for Success	• Refuse and Recyclable Material Collectors
			• Soil Scientist
			• Tree Trimmers and Pruners
			• Water and Wastewater Treatment Plant and System Operators
			• Wildlife Biologist

Career Pathway Program	General Agriculture Program (Must teach three courses from this program list within two years) This program is designed to deliver a variety of agricultural disciplines which will provide students a general understanding of the scope of agriculture as it relates to the following areas: animal science, plant science, food science, forestry and agricultural construction and agricultural mechanics.		
Course Number	**Career Program Pathway Courses**	**Career Readiness Indicator (CRI)**	**In Demand Occupations**
18003G1003	Advanced Agriscience	• Adult Beef Quality Assurance (The following three areas required): 1. Cow/Calf 2. Stocker/Backgrounder 3. Feedyard	• Agricultural Engineer
18004G1001	Agribiology – Science credit eligible		• Agricultural Equipment Operator
18401G1000	Agricultural and Biosystems Engineering		• Agricultural Sales
18402G1001	Agricultural Industrial Maintenance		• Agricultural Technician
18204G1000	Agriculture Marketing and Management	• Biotechnician – Skills for Success	• Agriscience Teacher
18205G1000	Agriculture Communications and Technology	• Briggs and Stratton Technician (Two of the following areas required) 1. Theory of Operation 2. Carburetors and Fuel Systems 3. Governors 4. Compression 5. Ignition Systems	• Biological Technician
18003G1004	Applied Agriscience		• Construction Laborer
18998G1000	Career Pathway Project in AFNR		• Construction Manager
18997G1000	CTE Lab in AFNR		• Electrician
19254G1000	Food Safety and Microbiology – Science credit eligible		• Farm Equipment Mechanics and Service Technicians
18502G1001	Forestry	• Bulldozer – Skills for Success	• Farm Labor Contractors
18003G1001	Fundamentals of Agriscience	• Carpentry Helper – Skills for Success	• Farmers, Ranchers, and Other Agricultural/Aquacultural Managers
18052G1001	Horticulture Science	• Construction and Skilled Trade Assessment (CAST)	• First-Line Supervisors of Farming, Fishing, and Forestry Workers
18003G1002	Intermediate Agriscience	• Drone Operator – Skills for Success	• Food Quality Assurance
18998G1050	Internship in AFNR	• Ducks Unlimited Ecology Conservation and Management Certification	• Food Science Technicians
18403G1000	Introduction to Agricultural Construction	• Electrical Helper – Skills for Success	• Forest and Conservation Technicians
18501G1002	Introduction to Animal and Dairy Science	• Excavator Operator – Skills for Success	• Foresters
		• FAA Part 107	• Graders and Sorters, Agricultural Products
		• Forestry Worker Certification	• HVAC Technician
		• Forklift – Skills for Success	• Industrial Maintenance Technician
		• Home Builders Association of Alabama Residential Construction Skills Certification	• Maintenance Technician
		• Integrated Pest Management Certification	• Pest Control Workers
		• Landscape Design (LD) Permit	• Plumber
		• Landscape Design and Plant Materials Certification	• Post-Secondary Agricultural Sciences Teacher
		• Landscape Management Technician	• Refuse and Recyclable Material Collectors
		• Land Survey Helper – Skills for Success	• USDA Inspector
		• MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments: 1. Safety 2. Quality Practices & Measurement 3. Manufacturing Processes & Production 4. Maintenance Awareness	• Warehouse Facility Manager
		• NCCER Core (Module 6 is an elective and not required for CRI)	• Water and Wastewater Treatment Plant and System Operators
		• Nursery & Landscape Worker – Skills for Success	• Welder
		• Plumbing Helper – Skills for Success	
		• Sawmill Worker Credentialing Program	
		• Skid Steer – Skills for Success	
		• Specialty Crops	
		• Urban Forestry Technician	
		• Water Treatment Operator Grade 2 - Skills for Success	

Career Pathway Program	Industrial Agriculture Program (Must teach three courses from this program list within two years) This program is designed to provide students with a general understanding of industrial maintenance, power equipment and modern construction building practices along with a basic understanding of metal fabrication and welding.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**In Demand Occupations**
18401G1000	Agricultural and Biosystems Engineering	• Asphalt Roller – Skills for Success	• Agricultural Equipment Operators
18449G1003	Agricultural Engines	• Biotechnician – Skills for Success	• Agricultural Contractor
18402G1001	Agricultural Industrial Maintenance	• Briggs and Stratton Technician (Two of the following areas required)	• Agricultural Engineer
18404G1001	Agricultural Welding 1	1. Theory of Operation	• Agricultural Technician
18404G1002	Agricultural Welding 2	2. Carburetors and Fuel Systems	• Automotive Service Technicians and Mechanics
18003G1004	Applied Agriscience	3. Governors	• Biological Technician
18998G1000	Career Pathway Project in AFNR	4. Compression	• Construction Laborer
18997G1000	CTE Lab in AFNR	5. Ignition Systems	• Construction Manager
18011G1000	Construction Finishing and Interior Systems	• Bulldozer – Skills for Success	• Electrician
18004G1000	Construction Framing	• Carpentry Helper – Skills for Success	• Farm Labor Contractors
18014G1000	Construction Site Preparations and Foundations	• Construction and Skilled Trade Assessment (CAST)	• Farm Equipment Mechanics and Service Technicians
18402G1002	Forestry Industrial Maintenance	• Drone Operator – Skills for Success	• First-Line Supervisors of Mechanics, Installers, and Repairers
18003G1001	Fundamentals of Agriscience	• Electrical Helper – Skills for Success	• HVAC Technician
18003G1002	Intermediate Agriscience	• Excavator Operator- Skills for Success	• Industrial Maintenance Technician
18998G1050	Internship in AFNR	• FAA Part 107	• Mechanical Drafter
18403G1000	Introduction to Agricultural Construction	• Forestry Worker Certification	• Mobile Heavy Equipment Mechanics, Except Engines
18010G1001	Introduction to Agricultural Wiring	• Forklift – Skills for Success	• Pipe Layer
18402G1000	Poultry Industrial Maintenance	• Home Builders Association of Alabama Residential Construction Skills Certification	• Plumber
20110G1003	Residential and Commercial Power Equipment	• Land Survey Helper – Skills for Success	• Tire Repairers and Changers
		• Meat Cutter – Skills for Success	• Welder
		• MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments:	
		1. Safety	
		2. Quality Practices & Measurement	
		3. Manufacturing Processes & Production	
		4. Maintenance Awareness	
		• NCCER Carpentry Level 1	
		• NCCER Core (Module 6 is an elective and not required for CRI)	
		• NCCER Welding Level 1	
		• Plumbing Helper – Skills for Success	
		• Skid Steer – Skills for Success	

Career Pathway Program	Plant Science Program (Must teach three courses from this program list within two years) This program is designed to provide students with an understanding of the greenhouse, horticulture, nursery/landscape industries and forestry.		
Course Number	**Career Pathway Program Courses**	**Career Readiness Indicator (CRI)**	**In Demand Occupations**
18004G1001	Agribiology – Science credit eligible	• American Meat Science Association (AMSA) Food Safety and Science Certification	• Agricultural Equipment Operators
18401G1000	Agricultural and Biosystems Engineering		• Agricultural Technician
18402G1001	Agricultural Industrial Maintenance	• BASF Plant Science Certification	• Agronomy Sales
18998G1000	Career Pathway Project in AFNR	• Biotechnician – Skills for Success	• Biological Technician
18997G1000	CTE Lab in AFNR	• Bulldozer – Skills for Success	• Chemical Engineer
18502G1005	Dendrology	• Excavator Operator – Skills for Success	• Conservation Scientists
18056G1002	Floriculture and Floral Design	• Drone Operator – Skills for Success	• Event Planner
19254G1000	Food Safety and Microbiology – Science credit eligible	• FAA Part 107	• Farmworkers and Laborers, Crop, Nursery, and Greenhouse
18502G1001	Forestry	• Forestry Worker Certification	• Florist
18402G1002	Forestry Industrial Maintenance	• Forklift – Skills for Success	• Florist Worker
18003G1001	Fundamentals of Agriscience	• Integrated Pest Management Certification	• Food Science Technicians
18052G1002	Greenhouse and Nursery Production	• Landscape Design (LD) Permit	• Forest and Conservation Workers
18052G1001	Horticulture Science	• Landscape Design and Plant Materials Certification	• Foresters
18003G1002	Intermediate Agriscience	• Landscape Management Technician	• Golf Course Superintendent
18998G1050	Internship in AFNR	• Land Survey Helper – Skills for Success	• Lab Technician
18056G1001	Landscape Design and Management	• MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments:	• Landscape Designer
18308G1002	Plant Biotechnology – Science credit eligible	1. Safety	• Landscaping and Groundskeeping Workers
18054G1000	Turfgrass Management	2. Quality Practices & Measurement	• Loggers
18502G1002	Urban Forestry	3. Manufacturing Processes & Production	• Logging Equipment Operators
		4. Maintenance Awareness	• Pest Control Worker
		• NCCER Core (Module 6 is an elective and not required for CRI)	• Pesticide Handlers, Sprayers, and Applicators, Vegetation
		• Nursery & Landscape Worker – Skills for Success	• Soil Scientist
		• Sawmill Worker Credentialing Program	• Tree Trimmers and Pruners
		• Setting of Landscape Plants (SLP) Permit	• Turfgrass Producer
		• Skid Steer – Skills for Success	
		• Specialty Crops	
		• Tree Surgery (TS) Permit	
		• Turfgrass Management Certification	
		• Urban Forestry Technician	

2025-2026 Subject and Personnel Codes
Agriculture, Food, and Natural Resources and Agriscience Middle School Program

Agriculture, Food and Natural Resources Cluster Courses			
Course Number	Course Name	Course Number	Course Name
18003G1003	Advanced Agriscience	19254G1000	Food Safety and Microbiology – Science credit eligible
18004G1001	Agribiology – Science credit eligible	18502G1001	Forestry
18401G1000	Agricultural and Biosystems Engineering	18502G0500	Forestry (½ credit)
18449G1003	Agricultural Engines	18402G1002	Forestry Industrial Maintenance
18449G0500	Agricultural Engines (½ credit)	18003G1001	Fundamentals of Agriscience
18402G1001	Agricultural Industrial Maintenance	18002G0500	Fundamentals of Agriscience (½ credit)
18404G1001	Agricultural Welding 1	18052G1002	Greenhouse and Nursery Production
18404G0500	Agricultural Welding 1 (½ credit)	18052G0502	Greenhouse and Nursery Production (½ credit)
18404G1002	Agricultural Welding 2	18052G1001	Horticulture Science
18205G1000	Agriculture Communications and Technology	18052G0500	Horticulture Science (½ credit)
18204G1000	Agriculture Marketing and Management	18003G1002	Intermediate Agriscience
18003G1004	Applied Agriscience	18998G1050	Internship in AFNR
18306G1002	Aquaculture Science – Science credit eligible	18403G1000	Introduction to Agricultural Construction
18306G1003	Aquatic Biology	18010G1001	Introduction to Agricultural Wiring
18998G1000	Career Pathway Project in Agriculture, Food, and Natural Resources	18501G1002	Introduction to Animal and Dairy Science
18011G1000	Construction Finishing and Interior Systems	18501G0502	Introduction to Animal and Dairy Science (½ credit)
18004G1000	Construction Framing	18105G1012	Introduction to Veterinary Science
18014G1000	Construction Site Preparations and Foundations	18056G1001	Landscape Design and Management
18997G1000	CTE Lab in Agriculture, Food and Natural Resources (AFNR)	18308G1002	Plant Biotechnology – Science credit eligible
18502G1005	Dendrology	18402G1000	Poultry Industrial Maintenance
18504G1000	Environmental Management – Science credit eligible	18101G1000	Poultry Science
18104G1000	Equine Science	18101G0500	Poultry Science (½ credit)
18104G0500	Equine Science (½ credit)	20110G1003	Residential and Commercial Power Equipment
18501G1001	Fish and Wildlife Management	18054G1000	Turfgrass Management
18501G0501	Fish and Wildlife Management (½ credit)	18502G1002	Urban Forestry
18056G1002	Floriculture and Floral Design	18105G1022	Veterinary Science
18056G0502	Floriculture and Floral Design (½ credit)	18502G1006	Wildland Firefighting and Controlled Fire

Middle School Program Courses			
18001G0735	Agriscience Exploration (7th Grade) (35 Instructional Hour Course)	18001G0610	Orientation to Agriscience (6th Grade) (140 Instructional Hour Course)
18001G0770	Agriscience Exploration (7th Grade) (70 Instructional Hour Course)	18001G0835	Pre-Agriscience (8th Grade) (35 Instructional Hour Course)
18001G0710	Agriscience Exploration (7th Grade) (140 Instructional Hour Course)	18001G0870	Pre-Agriscience (8th Grade) (70 Instructional Hour Course)
18001G0635	Orientation to Agriscience (6th Grade) (35 Instructional Hour Course)	18001G0810	Pre-Agriscience (8th Grade) (140 Instructional Hour Course)
18001G0670	Orientation to Agriscience (6th Grade) (70 Instructional Hour Course)		

Shared Courses			
Course Number	Course Name	Cluster(s)	Required Year to Implement COS
19254G1000	Food Safety and Microbiology	Hospitality & Tourism Human Services	2021-2022
18105G1012	Introduction to Veterinary Sciences	Health Science	2021-2022
18105G1022	Veterinary Science	Health Science	2021-2022

General Note: Course descriptions and content standards for most courses are located on the Alabama Department of Education website at: Alabama Achieves | Career and Technical Education | Courses of Study.

College and Career Readiness Indicator Course Matrix

Program Name	General Agriculture	Animal Science	Plant Science
Foundation Course(s)	Fundamentals of Agriscience	Fundamentals of Agriscience	Fundamentals of Agriscience
Concentrator Course(s)	Advanced Agriscience Agribiology Science Agricultural and Biosystems Engineering Agricultural Industrial Maintenance Agriculture Communications and Technology Agriculture Marketing and Management Applied Agriscience Food Safety and Microbiology Forestry Horticulture Science Intermediate Agriscience Introduction to Agricultural Construction Introduction to Animal and Dairy Science	Advanced Agriscience Agribiology Agricultural and Biosystems Engineering Agricultural Industrial Maintenance Aquaculture Science Aquatic Biology Equine Science Food Safety and Microbiology Fundamentals of Agriscience Introduction to Animal and Dairy Science Introduction to Veterinary Science Poultry Industrial Maintenance Poultry Science Veterinary Science	Agribiology Agricultural and Biosystems Engineering Agricultural Industrial Maintenance Dendrology Floriculture and Floral Design Food Safety and Microbiology Forestry Forestry Industrial Maintenance Fundamentals of Agriscience Greenhouse and Nursery Production Horticulture Science Intermediate Agriscience Landscape Design and Management Plant Biotechnology Turfgrass Management Urban Forestry
Capstone Course(s)	Career Pathway Project in Agriculture, Food, and Natural Resources CTE Lab in AFNR Internship in AFNR	Career Pathway Project in Agriculture, Food, and Natural Resources CTE Lab in AFNR Internship in AFNR	Career Pathway Project in Agriculture, Food, and Natural Resources CTE Lab in AFNR Internship in AFNR

Program Name	Environmental and Natural Resources	Industrial Agriculture
Foundation Course(s)	Fundamentals of Agriscience	Fundamentals of Agriscience
Concentrator Course(s)	Agribiology Agricultural and Biosystems Engineering Agricultural Industrial Maintenance Dendrology Environmental Management Fish and Wildlife Management Forestry Forestry Industrial Maintenance Fundamentals of Agriscience Intermediate Agriscience Urban Forestry Wildland Firefighting and Controlled Fire	Agricultural and Biosystems Engineering Agricultural Engines Agricultural Industrial Maintenance Agricultural Welding 1 Agricultural Welding 2 Applied Agriscience Construction Finishing and Interior Systems Construction Framing Construction Site Prep and Foundations Forestry Industrial Maintenance Fundamentals of Agriscience Intermediate Agriscience Introduction to Agricultural Construction Introduction to Agricultural Wiring Poultry Industrial Maintenance Residential and Commercial Power Equipment
Capstone Course(s)	Career Pathway Project in Agriculture, Food, and Natural Resources CTE Lab in AFNR Internship in AFNR	Career Pathway Project in Agriculture, Food, and Natural Resources CTE Lab in AFNR Internship in AFNR

To meet the CCR Indicator as a CTE completer, a student must earn three (3.0) credits with the grade of a "C" or higher in CTE courses that are part of an approved CTE program of study. Additional requirements are outlined in Memorandum **FY22-2065**.

This matrix is intended for general guidance on the CCR completer status and is subject to change. For all CTE programming information, please refer to the CTE Cluster specific Program Guide. It contains a list of approved CTE programs, valid course numbers, approved Career Readiness Indicators (CRIs), and in demand occupations.

*Courses are listed in alphabetical order, not in sequential order.