



2021-2022

PROGRAM GUIDE FOR:

AGRICULTURE,

FOOD AND NATURAL RESOURCES CLUSTER,

AND

ARGISCIENCE 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 Agriculture, Animal Science, Plant Science, Environmental and Natural Resources, Industrial Agriculture 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 agriculture education. The National FFA organization (FFA) serves as the CTSO for this cluster. Additionally, project-based learning experiences, otherwise known as a Supervised Agriculture Experience (SAE) are an integral part of agriculture education.

****Courses highlighted in yellow are shared with other clusters. See "Shared Courses" table on page 6 for additional details.**

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 wildlife sciences, agricultural construction and agricultural mechanics.		
Course Number	Career Program Pathway Courses	Career Readiness Indicator (CRI)	Workforce Careers
18003G1001	Fundamentals of Agriscience	<ul style="list-style-type: none"> • NCCER Core (module 6 is an elective and not required for CRI) • Urban Forestry Technician • Landscape Management Technician • Landscape Design (LD) Permit • Landscape Design and Plant Materials Certification • Integrated Pest Management Certification • Forestry Worker Certification • Adult Beef Quality Assurance (The following three areas required): <ol style="list-style-type: none"> 1. Cow/Calf 2. Feed yard 3. Stocker • Briggs and Stratton Technician (Two of the following areas required) <ol style="list-style-type: none"> 1. Theory of Operation 2. Carburetors and Fuel Systems 3. Governors 4. Compression 5. Ignition Systems • Construction and Skilled Trade Assessment (CAST) • Specialty Crops • Aquaculture Training and Online Learning (ATOLL) Aquaculture or Aquaponics • MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments: <ol style="list-style-type: none"> 1. Safety 2. Quality Practices & Measurement 3. Manufacturing Processes & 4. Production 5. Maintenance Awareness 	<ul style="list-style-type: none"> • Agriscience Teacher • Construction Manager • Post-Secondary Agricultural Sciences Teacher • Agricultural Equipment Operator • Warehouse Facility Manager • Food Quality Assurance • USDA Inspector • Construction Laborer • Maintenance Technician • Agricultural Engineer • Welder • Plumber • Electrician • HVAC Technician • Industrial Maintenance Technician • Agricultural Sales • Refuse and Recyclable Material Collectors • Farmworkers, Farm, Ranch, and Aquacultural Animals • Farm Equipment Mechanics and Service Technicians • First-Line Supervisors of Farming, Fishing, and Forestry Workers • Water and Wastewater Treatment Plant and System Operators
18002G0500	Fundamentals of Agriscience (1/2 Credit)		
18003G1002	Intermediate Agriscience		
18003G1003	Advanced Agriscience		
18003G1004	Applied Agriscience		
18004G1001	AgriBiology		
18401G1000	Agricultural and Biosystems Engineering		
18402G1001	Agricultural Industrial Maintenance		
18205G1000	Agricultural Communications and Technology		
18204G1000	Agricultural Marketing and Management		
18306G1002	Aquaculture Science		
18501G1001	Fish and Wildlife Management		
18501G0501	Fish and Wildlife Management (1/2 Credit)		
19254G1000	Food Safety and Microbiology		
18502G1001	Forestry		
18502G0500	Forestry (1/2 Credit)		
18402G1002	Forestry Industrial Maintenance (Requires Agricultural Industrial Maintenance as a prerequisite)		
18052G1001	Horticulture Science		
18052G0500	Horticulture Science (1/2 Credit)		
18403G1000	Introduction to Agricultural Construction		
18501G1002	Introduction to Animal and Dairy Science		
18501G0502	Introduction to Animal and Dairy Science (1/2 Credit)		
18101G1000	Poultry Science		
18101G0500	Poultry Science (1/2 Credit)		
18402G1000	Poultry Industrial Maintenance (Requires Agricultural Industrial Maintenance as a prerequisite)		
18997G1000	CTE Lab in AFNR		
18998G1000	Career Pathway Project in AFNR (Must successfully complete any two courses in the AFNR Cluster as a prerequisite to this course)		

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)	Workforce Careers
18003G1001	Fundamentals of Agriscience	<ul style="list-style-type: none"> • Adult Beef Quality Assurance (The following three areas are required): <ul style="list-style-type: none"> ○ Cow/Calf ○ Stocker ○ Feed yard • Aquaculture Training and Online Learning (ATOLL) Aquaculture or Aquaponics • MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments: <ol style="list-style-type: none"> 1. Safety 2. Quality Practices & Measurement 3. Manufacturing Processes & Production 4. Maintenance Awareness 	<ul style="list-style-type: none"> • Food Science Technician • Farm Worker • Artificial Insemination Technician • Veterinarian • Veterinary Technician • Farm Products Purchasing Agent • Agricultural Sales • Non-Farm Animal Worker • Livestock Manager • Poultry Operator • Ag Field Service Representative • Food Quality Assurance • USDA Inspector • Laborers and Freight, Stock, and Material Movers, Hand • Farmworkers, Farm, Ranch, and Aquacultural Animals • Agricultural Equipment Operators • Farmers, Ranchers, and Other Agricultural Managers
18002G0500	Fundamentals of Agriscience (1/2 Credit)		
18401G1000	Agricultural and Biosystems Engineering		
18004G1001	AgriBiology		
18402G1001	Agricultural Industrial Maintenance		
18306G1002	Aquaculture Science		
18306G1003	Aquatic Biology		
18104G1000	Equine Science		
18104G0500	Equine Science (1/2 Credit)		
19254G1000	Food Safety and Microbiology		
18105G1012	Introduction to Veterinary Science		
18501G1002	Introduction to Animal and Dairy Science		
18501G0502	Introduction to Animal and Dairy Science (1/2 Credit)		
18402G1000	Poultry Industrial Maintenance (Requires Agricultural Industrial Maintenance as a prerequisite)		
18101G1000	Poultry Science		
18101G0500	Poultry Science (1/2 Credit)		
18105G1022	Veterinary Science		
18997G1000	CTE Lab in AFNR		
18998G1000	Career Pathway Project in AFNR (Must successfully complete any two courses in the AFNR Cluster as a prerequisite to this course)		

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 and nursery/landscape industries.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	Workforce Careers
18003G1001	Fundamentals of Agriscience	<ul style="list-style-type: none"> • Landscape Management Technician • Urban Forestry Technician • Setting of Landscape Plants (SLP) Permit • Tree Surgery (TS) Permit • Landscape Design (LD) Permit • Landscape Design and Plant Materials Certification • Forestry Worker Certification • Turfgrass Management Certification • Specialty Crops • Integrated Pest Management Certification • MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments: <ol style="list-style-type: none"> 1. Safety 2. Quality Practices & Measurement 3. Manufacturing Processes & Production 4. Maintenance Awareness 	<ul style="list-style-type: none"> • Chemical Engineer • Soil Scientist • Pest Control Worker • Landscape Designer • Agronomy Sales • Golf Course Superintendent • Turfgrass Producer • Lab Technician • Florist • Florist Worker • Event Planner • Landscaping and Groundskeeping Workers • Forest and Conservation Workers • Pesticide Handlers, Sprayers, and Applicators, Vegetation • Conservation Scientists
18002G0500	Fundamentals of Agriscience (1/2 Credit)		
18401G1000	Agricultural and Biosystems Engineering		
18004G1001	AgriBiology		
18402G1001	Agricultural Industrial Maintenance		
18502G1005	Dendrology		
18056G1002	Floriculture and Floral Design		
18056G0502	Floriculture and Floral Design (1/2 Credit)		
19254G1000	Food Safety and Microbiology		
18502G1001	Forestry		
18502G0500	Forestry (1/2 Credit)		
18402G1002	Forestry Industrial Maintenance		
18052G1002	Greenhouse and Nursery Production		
18052G0502	Greenhouse and Nursery Production (1/2 Credit)		
18052G1001	Horticulture Science		
18052G0500	Horticulture Science (1/2 Credit)		
18056G1001	Landscape Design and Management		
18308G1002	Plant Biotechnology		
18054G1000	Turfgrass Management		
18502G1002	Urban Forestry		
18997G1000	CTE Lab in AFNR		
18998G1000	Career Pathway Project in AFNR (Must successfully complete any two courses in the AFNR Cluster as a prerequisite to this course)		

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 science and management of natural resources.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	Workforce Careers
18003G1001	Fundamentals of Agriscience	<ul style="list-style-type: none"> NCCER Core (module 6 is an elective and not required for CRI) Urban Forestry Technician Integrated Pest Management Certification Forestry Worker Certification Tree Surgery (TS) Permit MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments: <ol style="list-style-type: none"> Safety Quality Practices & Measurement Manufacturing Processes & Production Maintenance Awareness 	<ul style="list-style-type: none"> Forester Environmental Engineer Environmental Engineering Technicians Forest and Conservation Technicians Conservation Officer Lab Technician Hunters and Trappers Wildlife Biologist Soil Scientist Professional Fisherman Logger Recreation Worker Refuse and Recyclable Material Collectors Water and Wastewater Treatment Plant and System Operators Hazardous Materials Removal Workers Environmental Science and Protection Technicians, Including Health Environmental Science Teachers, Postsecondary
18002G0500	Fundamentals of Agriscience (1/2 Credit)		
18401G1000	Agricultural and Biosystems Engineering		
18402G1001	Agricultural Industrial Maintenance		
18502G1005	Dendrology		
18504G1000	Environmental Management		
18501G1001	Fish and Wildlife Management		
18501G0501	Fish and Wildlife Management (1/2 Credit)		
18502G1001	Forestry		
18502G0500	Forestry (1/2 Credit)		
18402G1002	Forestry Industrial Maintenance		
18502G1002	Urban Forestry		
18502G1006	Wildland Firefighting and Controlled Fire		
18997G1000	CTE Lab in AFNR		
18998G1000	Career Pathway Project in AFNR (Must successfully complete any two courses in the AFNR Cluster as a prerequisite to this course)		

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 agricultural power equipment and modern construction and building practices along with a basic understanding of metal fabrication and welding.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	Workforce Careers
18003G1001	Fundamentals of Agriscience	<ul style="list-style-type: none"> NCCER Core (module 6 is an elective and not required for CRI) NCCER Carpentry Level 1 NCCER Welding Level 1 Construction and Skilled Trade Assessment (CAST) MSSC – Certified Production Technician (CPT): Each module will count as a CRI. The CPT 4.0 program consists of five individual certificate assessments: <ol style="list-style-type: none"> Safety Quality Practices & Measurement Manufacturing Processes & Production Maintenance Awareness Briggs and Stratton Technician (Two of the following areas required) <ol style="list-style-type: none"> Theory of Operation Carburetors and Fuel Systems Governors Compression Ignition Systems 	<ul style="list-style-type: none"> Construction Laborer Agricultural Contractor Pipe Layer Welder Electrician Plumber Industrial Maintenance Technician HVAC Technician Agricultural Engineer Construction Manager Mechanical Drafter Automotive Service Technicians and Mechanics Farm Equipment Mechanics and Service Technicians Mobile Heavy Equipment Mechanics, Except Engines First-Line Supervisors of Mechanics, Installers, and Repairers Tire Repairers and Changers
18002G0500	Fundamentals of Agriscience (1/2 Credit)		
18401G1000	Agricultural and Biosystems Engineering		
18449G1003	Agricultural Engines		
18449G0500	Agricultural Engines (1/2 Credit)		
18402G1001	Agricultural Industrial Maintenance		
18404G1001	Agricultural Welding Processes 1		
18404G0500	Agricultural Welding Processes 1 (1/2 Credit)		
18404G1002	Agricultural Welding 2		
18010G1001	Introduction to Agricultural Wiring		
18011G1000	Construction Finishing and Interior Systems		
18004G1000	Construction Framing		
18014G1000	Construction Site Prep and Foundations		
18402G1002	Forestry Industrial Maintenance		
18403G1000	Introduction to Agricultural Construction		
18402G1000	Poultry Industrial Maintenance		
20110G1003	Residential and Commercial Power Equipment		
18997G1000	CTE Lab in AFNR		
18998G1000	Career Pathway Project in AFNR (Must successfully complete any two courses in the AFNR Cluster as a prerequisite to this course)		

Career Pathway Program	Middle School Program (Must teach three courses from this program list within two years)		
	This program is designed to provide students with a general understanding of agricultural power equipment and modern construction and building practices along with a basic understanding of metal fabrication and welding.		
Course Number	Career Pathway Program Courses	Career Readiness Indicator (CRI)	Workforce Careers
18001G0610	Orientation to Agriscience (6 th Grade) (140 Instructional Hour Course)	N/A	Middle School
18001G0670	Orientation to Agriscience (6 th Grade) (70 Instructional Hour Course)		
18001G0635	Orientation to Agriscience (6 th Grade) (35 Instructional Hour Course)		
18001G0710	Agriscience Exploration (7 th Grade) (140 Instructional Hour Course)		
18001G0770	Agriscience Exploration (7 th Grade) (70 Instructional Hour Course)		
18001G0735	Agriscience Exploration (7 th Grade) (35 Instructional Hour Course)		
18001G0810	PreAgriscience (8 th Grade) (140 Instructional Hour Course)		
18001G0870	PreAgriscience (8 th Grade) (70 Instructional Hour Course)		
18001G0835	PreAgriscience (8 th Grade) (35 Instructional Hour Course)		
18003G1001	Fundamentals of Agriscience (Recommended 9 th Grade)		
18002G0500	Fundamentals of Agriscience (Recommended 9 th Grade) (1/2 Credit)		

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

Agriculture, Food and Natural Resources Cluster Courses (Grades 9-12)			
Course Number	Course Name	Course Number	Course Name
18003G1003	Advanced Agriscience	19254G1000	Food Safety and Microbiology
18004G1001	AgriBiology	18502G1001	Forestry
18449G1003	Agricultural Engines	18502G0500	Forestry (1/2 Credit)
18449G0500	Agricultural Engines (1/2 Credit)	18402G1002	Forestry Industrial Maintenance
18402G1001	Agricultural Industrial Maintenance	18003G1001	Fundamentals of Agriscience
18404G1001	Agricultural Welding Processes 1	18002G0500	Fundamentals of Agriscience (1/2 Credit)
18404G0500	Agricultural Welding Process 1 (1/2 Credit)	18052G1002	Greenhouse and Nursery Production
18404G1002	Agricultural Welding Processes 2	18052G0502	Greenhouse and Nursey Production (1/2 Credit)
18401G1000	Agriculture and Biosystems Engineering	18052G1001	Horticultural Science
18205G1000	Agriculture Communications and Technology	18052G0500	Horticultural Science (1/2 Credit)
18204G1000	Agriculture Marketing and Management	18003G1002	Intermediate Agriscience
18003G1004	Applied Agriscience	18403G1000	Introduction to Agricultural Construction
18306G1002	Aquaculture Science	18010G1001	Introduction to Agricultural Wiring
18306G1003	Aquatic Biology	18501G1002	Introduction to Animal and Dairy Science
18998G1000	Career Pathway Project in Agriculture, Food, and Natural Resources	18501G0502	Introduction to Animal and Dairy Science (1/2 Credit)
18011G1000	Construction Finishing and Interior Systems	18105G1012	Introduction to Veterinary Science
18004G1000	Construction Framing	18056G1001	Landscape Design and Management
18014G1000	Construction Site Prep and Foundations	18308G1002	Plant Biotechnology
18997G1000	CTE Lab in Agriculture, Food and Natural Resources (AFNR)	18402G1000	Poultry Industrial Maintenance
18502G1005	Dendrology	18101G1000	Poultry Science
18504G1000	Environmental Management	18101G0500	Poultry Science (1/2 Credit)
18104G1000	Equine Science	20110G1003	Residential and Commercial Power Equipment
18104G0500	Equine Science (1/2 Credit)	18054G1000	Turfgrass Management
18501G1001	Fish and Wildlife Management	18502G1002	Urban Forestry
18501G0501	Fish and Wildlife Management (1/2 Credit)	18105G1022	Veterinary Science
18056G1002	Floriculture and Floral Design	18502G1006	Wildland Firefighting and Controlled Fire
18056G0502	Floriculture and Floral Design (1/2 Credit)		

MIDDLE SCHOOL PROGRAM COURSES			
18001G0610	Orientation to Agriscience (6 th Grade) (140 Instructional Hour Course)	18001G0735	Agriscience Exploration (7th Grade) (35 Instructional Hour Course)
18001G0670	Orientation to Agriscience (6th Grade) (70 Instructional Hour Course)	18001G0810	PreAgriscience (8 th Grade) (140 Instructional Hour Course)
18001G0635	Orientation to Agriscience (6th Grade) (35 Instructional Hour Course)	18001G0870	PreAgriscience (8th Grade) (70 Instructional Hour Course)
18001G0710	Agriscience Exploration (7 th Grade) (140 Instructional Hour Course)	18001G0835	PreAgriscience (8th Grade) (35 Instructional Hour Course)
18001G0770	Agriscience Exploration (7th Grade) (70 Instructional Hour Course)		

Shared Courses		
Course Number	Course Name	Cluster(s)
19254G1000	Food Safety and Microbiology	Hospitality and Tourism
18105G1012	Introduction to Veterinary Sciences	Health Science
20110G1003	Residential and Commercial Power Equipment	Transportation, Distribution and Logistics
18105G1022	Veterinary Science	Health Science