

# Appendix C

## RECOMMENDATIONS FOR RELATED TECHNICAL CLASSROOM INSTRUCTION FOR AGRICULTURE, FOOD AND NATURAL RESOURCES (AFNR) YA

These recommendations are intended to be used by the YA Consortiums when determining appropriate related technical instruction for Agriculture, Food and Natural Resources (AFNR) YA. It is not all inclusive but should be used to assist the partnership with identification and/or development of course work that supports the work-based competencies as identified in the Skill Standards Checklist. As with all YA programs the consortium must ensure that the related instruction meets with the approval of their administration and school board.

### OPERATIONAL NOTES

- Related Technical Classroom Instruction maybe offered by the employer, within the school district, at another school district, at a Wisconsin Technical College, and/or at a Community College or University by instructors qualified according to the [Youth Apprenticeship Program Operations Manual](http://dwd.wisconsin.gov/youthapprenticeship/pdf/program_operations_manual_2015.pdf) (YA POM) at [http://dwd.wisconsin.gov/youthapprenticeship/pdf/program\\_operations\\_manual\\_2015.pdf](http://dwd.wisconsin.gov/youthapprenticeship/pdf/program_operations_manual_2015.pdf).
- Learning Objectives are the foundation of related technical classroom instruction. Consortiums may teach using locally developed coursework; however, it is recommended that agreements with the local technical college be pursued to obtain post-secondary credit for YA worksite and classroom experiences.
- A minimum of 180 hours (2 semesters) of related technical instruction is required for each one year YA program with 250 of the **work** hours coinciding with the instruction. The student must also receive high school credit towards graduation for this instruction, no matter the provider.
- It is suggested that the following courses or learning experiences be provided as a pre-requisite OR concurrently for students interested in this youth apprenticeship:
  - Introduction to Agriculture & Natural Resources Careers
  - Automotive Technologies
  - Biology
  - Business and Marketing
  - Chemistry
  - Environmental Science
  - Electrical Fundamentals
  - Farm Machinery

Additionally, students should complete a job shadow prior to enrollment in the AFNR YA program.

- If applicable and available at the worksite, efforts should be made with the employer to offer the student a continuing [Registered Apprenticeship](#) upon high school graduation. (See Registered Apprenticeship program information at [http://dwd.wisconsin.gov/apprenticeship/registered\\_apprenticeships.htm](http://dwd.wisconsin.gov/apprenticeship/registered_apprenticeships.htm).)
- Commercial programs or Employer provided classroom certification programs are also appropriate provided that the student receives high school credit towards graduation for the class work. A variety of courses are available locally and online. Programs that support the Future Farmers of America (FFA) Supervised Agricultural Experiences (SAI) (<https://www.ffa.org/about/supervised-agricultural-experiences>), or are based on the Center for Agricultural and Environmental Research and Training (CAERT) (<http://www.caert.net/>) and the iCEV on-line cloud based curriculum (<https://www.icevonline.com/>), Lesson Plan Libraries are appropriate for this YA program.
- A tractor safety course is **highly recommended** if students will be using tractors during the course of their worksite placement.
- Recommendations for this Appendix were obtained from Employers, the Wisconsin Department of Public Instruction, Wisconsin Technical College Faculty, YA Consortium/School District Coordinators during the Production Agriculture YA Survey, and through the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) recommendations at <http://www.careertech.org/>. Funded in part by the U.S. Department of Education.



## Agriculture, Food & Natural Resources (AFNR) Youth Apprenticeship (YA) Plan of Study

**NAME:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

The Related Technical Instruction course selection and delivery are entirely within local consortium control. The recommendations listed below are only a suggested path of YA career planning and should be individualized to meet each learner's educational and career goals. All plans should meet high school graduation requirements, as well as, college entrance requirements as applicable.

### HIGHLY Recommended for **ALL** AFNR YA students

Educational Level	Grade	English/ Language Arts	Social Studies Social Sciences	Math	Science	Career Pathway Courses  (Electives)	Recommended Enhancement Electives or Activities
<b>Secondary</b>	<b>9</b>	Oral Communications (Speech)			Ag Science Biology	Computer Applications Principles of Agriculture and Natural Resources	FFA Skills USA Environmental Club
	<b>10</b>	Business Communications			Chemistry	Business and Marketing Concepts Computer Applications Simple Machines, Small Engines Welding Electrical Systems Automotive Technologies Mechanical Technology	FFA Skills USA Environmental Club Job-Shadowing
	<b>11</b>				Plant or Animal Science Environmental Science	<b>AFNR Youth Apprenticeship - Level One or Two</b> <ul style="list-style-type: none"> <li>• Employability Skills</li> <li>• Customer Service</li> <li>• Botany, Landscape Design, Greenhouse Management (YA Plants Pathway)</li> <li>• Large or Small Animal Science, Vet Science, Aquaculture (YA Animals Pathway)</li> <li>• Natural Resources, Environmental Science (YA Environmental Systems Pathway)</li> <li>• Food Science</li> <li>• Agriculture Mechanics Technician (YA Power, Structural and Technical Systems Pathway)</li> <li>• Agriculture Parts, Sales and Service (YA Power, Structural and Technical Systems Pathway)</li> </ul>	
	<b>12</b>		Economics		Biotechnology		

## Post-Secondary Occupational Opportunities

The chart below shows examples of career ladders organized by pathway.

For additional career cluster information, visit [www.careertech.org](http://www.careertech.org)

For additional career information on a specific occupation, visit <http://wicareerpathways.org/> or <http://worknet.wisconsin.gov/worknet/default.aspx>

		High School Diploma, On-the-Job Training	Certificate, Licensing, and/or Associate's Degree (1-2 years college)	Bachelor's/Master's Degree (4 year college)	
		Agriculture, Food & Natural Resources (AFNR) Pathways		<b>Plant Systems</b>	General Farm Worker Grounds Worker Landscape Worker Nursery Worker Tree Trimmer
<b>Animal Systems</b>	Farm Worker Vet Assistant			Animal Breeder Dairy Herd Manager Farm Labor Contractor Livestock Buyer Rancher Vet Technician	Animal Scientist Fish Hatchery Manager Livestock Geneticist USDA Inspector Veterinarian Wildlife Biologist
<b>Agribusiness Systems</b>	Feed & Supply Store Clerk Greenhouse Salesperson			Agribusiness Specialist Agricultural Sales Feed Sales Representative	Agricultural Economist Agricultural Educator Agricultural Lender Farm Investment Manager
<b>Environmental Systems</b>	Boiler Operator Plant Operator Water Treatment Technician Waste Water Operator (Registered Apprenticeship)			Calibration Technologist Field Service Technologist Instrumentation Technologist Plant Operator Water Quality Lab Technologist	Civil Engineer Environmental Engineer Hydrologist Plant Manager
<b>Power, Structural and Technical Systems</b>	Agriculture Power and Equipment Sales Representative Agriculture Service Technician Derrick Operators Oil and Gas Electronic Motor, Power Tool & Related Repairers.			Agriculture Service Technician Agriculture Field Technician Precision Farming Specialist Parts & Service Department Manager Agriculture Power & Equipment Sales Representative Custom Harvesting Operator/Technician Agriculture Dealership Service Writer Aircraft Mechanics & Service Technicians	Agricultural Engineers Agriculture Sciences Teacher Electronics Engineers Engineering Technicians Precision Agriculture Technicians

SOURCES: National Association of State Directors of CTE Consortium, 2009 & 2013, [www.careertech.org](http://www.careertech.org); Wisconsin's Worknet, <http://worknet.wisconsin.gov/>; Milwaukee Water Council Career Map, 2012; Waukesha County Technical College (WCTC), Susan Maresh, Waukesha County School-to-Work, 2007.



# SAMPLE

## Agriculture, Food, and Natural Resources: Power, Structural and Technical Systems Career Pathway Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

This Career Pathway Plan of Study (based on the Power, Structural and Technical Systems Pathway of the Agriculture, Food and Natural Resources Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. \*This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Power, Structural and Technical Systems Pathway	SAMPLE Occupations Relating to This Pathway	
<i>Interest Inventory Administered and Plan of Study Initiated for all Learners</i>									
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Environmental Science	State History Civics	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Supervised Agricultural Experience (SAE) and participation in appropriate FFA activities support and reinforce classroom and laboratory learning and should be a requirement for all students.	• Introduction to Agriculture, Food and Natural Resources	<b>Occupations Requiring Postsecondary Education</b> ▶ Communication Technician ▶ Database Administrator ▶ Electronic Systems Technician ▶ Equipment/Parts Manager ▶ GPS Technician ▶ Heavy Equipment Maintenance Technician ▶ Information Lab Specialist ▶ Machine Operator ▶ Machinist ▶ Recycling Technician ▶ Remote Sensing Specialist ▶ Welder	
	10	English/ Language Arts II	Geometry	Biology	U.S. History		• Introduction to Power, Structural and Technical Systems		
	11	English/ Language Arts III	Algebra II or other math course	Physics or other science course	World History		• Structural Systems		
	<i>College Placement Assessments-Academic/Career Advisement Provided</i>								
	12	English/ Language Arts IV	Trigonometry or other math course	Chemistry or other science course			• Power Systems • Internship in Power, Structural and Technical Systems		
<i>Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.</i>									
POSTSECONDARY	Year 13	English Composition	Algebra	Physics Chemistry	American Government	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	• Power, Structural and Technical Systems	<b>Occupations Requiring Baccalaureate Degree</b> ▶ Agricultural Applications Software Developer/Programmer ▶ Agricultural Educator ▶ Agricultural Engineer ▶ Waste Water Treatment Plant Operator	
	Year 14	Speech/ Oral Communication	Calculus	Earth Science Biological Science	American History Geography		• Technical Systems • Advanced Applications of Technical Systems		
	Year 15	Technical Writing	Statistics		Political Science		• Continue Courses in the Area of Specialization		
	Year 16	Continue courses in the area of specialization.					• Complete Power, Structural and Technical Systems Major (4-Year Degree Program)		

SOURCES: National Association of State Directors of CTE Consortium, [www.careertech.org](http://www.careertech.org)