

## **Section II**

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# **Wisconsin Standards for Agriculture, Food, and Natural Resources**

## **Agriculture, Food, and Natural Resources is a Part of Career and Technical Education**

The standards outlined in this document provide an important foundation to prepare individuals for a wide range of careers in Agriculture, Food, and Natural Resources (AFNR). AFNR is part of a larger system referred to as career and technical education (CTE). CTE in Wisconsin is both a collection of educational programs or disciplines as well as a system of preparing students for college, career, community, and life. CTE programs are delivered primarily through six specific disciplines. These include:

- Agriculture, Food, and Natural Resources
- Business and Information Technology
- Family and Consumer Sciences
- Health Science
- Marketing, Management, and Entrepreneurship
- Technology and Engineering

### **A National Vision for CTE**

The National Association of State Directors of Career and Technical Education has developed a bold vision for CTE titled [\*“Without Limits: A Shared Vision for the Future of Career Technical Education”\*](#) (CTE Without Limits). This vision lays out a cohesive, flexible, and responsive career preparation ecosystem designed to close equity gaps in educational outcomes and workforce readiness, and leverage CTE as a catalyst for ensuring each learner can reach success in the career of their choice. Wisconsin supports the five interconnected and equally critical principles:

- Each learner engages in a cohesive, flexible, and responsive career preparation ecosystem.
- Each learner feels welcome, is supported, and has the means to succeed in the career preparation ecosystem.
- Each learner skillfully navigates their own career journey.
- Each learner’s skills are counted, valued, and portable.
- Each learner can access CTE without borders. In other words, as learners become increasingly mobile and not place-based, and as more learning and work happens remotely, geographic barriers that limit access and opportunities for learners, particularly those in rural communities, need to be removed.

### Wisconsin’s Vision for Career and Technical Education

The Wisconsin vision for career and technical education (CTE) is shaped by Wisconsin practitioners, experts, and the business community, and is informed by work at the national level and in other states. The overarching goal of Wisconsin’s vision for CTE is for students to see themselves as confident doers and learners in a career pathway, supporting the department’s vision to be engaged learners fully prepared to create a better Wisconsin together.

### Building a Foundation of Career Readiness

As noted in Section I, the Wisconsin Career Readiness Standards (WCRS) capture the knowledge, skills, and abilities that students need to be successful in their chosen career pathway and will lead to workplace success. Because career and technical education (CTE) prepares all students for their future career, education, and ultimately life success, the WCRS are a natural fit for any CTE course. Educators will find many of the WCRS embedded in the AFNR standards. Here is an example of what WCRS looks like in AFNR:

Wisconsin Career Readiness Standards	Wisconsin Agriculture, Food, and Natural Resources Standards
<p><b>Career Ready (CAR)</b></p> <p><b>WCRS.CAR.2.A:</b> Identify the in-demand career and entrepreneurship opportunities that align with personal interests, skills, and work values.</p>	<p><b>Agriculture Leadership, Literacy and Research (ALLR)</b></p> <p><b>AFNR.ALLR.5.B.b.1:</b> Research and describe careers in each of the AFNR pathways, and choose potential careers connecting to personal interests and skills.</p>
<p><b>Learning Ready (LRN)</b></p> <p><b>WCRS.LRN.2.A:</b> Find and use unbiased, rational information to defend ideas and make decisions.</p>	<p><b>Animal Science (AS)</b></p> <p><b>AFNR.AS.8.B.i.1:</b> Critique reliability and validity of evidence regarding effects of environmental conditions on animal populations and performance.</p>

<p><b>Life Ready (LIF)</b></p> <p><b>WCERS.LIF.2.B:</b> Communicate and collaborate effectively with others, using various modes of communication, across languages, cultures, and contexts.</p>	<p><b>Power, Structure, and Mechanical Technology (PSMT)</b></p> <p><b>AFNR.PSMT.1.G:</b> Communicate and work effectively in power, structural, and mechanical technology settings with individuals and groups representing diverse backgrounds and abilities.</p>
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### CTE in the Elementary Grades

Another way to build the foundation for career readiness is to expose students to career and technical education in the elementary grades. We encourage elementary educators to intentionally weave appropriate CTE standards into subject areas such as math, science, social studies, and English. Educators will be able to learn more about how to implement the Wisconsin Career Readiness and other CTE standards in elementary grades in a future publication, “Wisconsin’s Guide to K-5 Career Readiness.”

Agriculture, Food, and Natural Resources (AFNR) has a presence at the elementary grade levels, especially related to agricultural literacy and food production. Knowledge and skills in these areas are woven throughout the elementary curriculum. AFNR teachers in districts are an excellent resource to assist in the development of curriculum and activities. Teachers can effectively use CTE concepts in instruction and activities to develop foundational skills and also create a connection to the world of work. The leadership of an AFNR-licensed teacher can support learning at all grade levels to create a continuum of learning from the elementary grades to high school. The collaborative relationship between elementary classroom teachers and AFNR-licensed teachers ensures students are acquiring the fundamental skills to be successful in their future.

While some schools may offer Agriculture, Food, and Natural Resources courses at the elementary level that meet standards found in the Wisconsin Standards for Agriculture, Food, and Natural Resources, other schools may be looking for agricultural literacy connections that can inherently be found in other contexts. The National Center for Agricultural Literacy recognizes the [National Agricultural Literacy Outcomes](#) (Spielmaker and Leising, 2014) as benchmarks outlining what agriculturally literate individuals should know and be able to communicate about agriculture. The *National Agricultural Literacy Outcomes* correlate to national education standards by grade level.

## Delivering CTE Through Career Pathways

Through CTE, learners not only gain awareness of various careers, but also have opportunities to engage in deeper exploration and preparation through a career pathway. Each pathway—whether health science, agriculture, business, construction, or engineering, to name a few—includes elements of career and technical education that help students develop the knowledge and skills to be successful in the career of their choice.

While there is a national career cluster and pathway framework that serves to organize occupations into 16 clusters and 79 pathways, the term “career pathway” used throughout this document refers to an education and workforce development system approach that enables students to embark on a plan that outlines the education and training opportunities that will help them move toward a career goal.

Elements of CTE that create a career pathway include:

- A sequence of CTE courses that build from introductory to more advanced levels
- Work-based learning experiences
- Career and technical student organizations (CTSOs)
- Dual enrollment or college credit opportunities
- Industry-recognized credentials

Wisconsin schools use the above elements as a framework to engage with stakeholders to provide rich and authentic opportunities and experiences that help students gain knowledge and skills that go beyond the classroom experience.

While schools may independently build their own career pathways, Wisconsin’s regional career pathway (RCP) approach makes the process easier for individual school districts by vetting some of the career pathway components on a regional basis and tailoring pathways to address regional employment needs. Wisconsin’s regional career pathway network covers seven regions—

each with its own advisory group of local employers, educational organizations, and economic and workforce development interests.

Partnerships that bring business and educational organizations together are an effective way to ensure that students are gaining practical and up-to-date knowledge and skills necessary to get a jump-start on a career in their regional industries. Leading employers share direct input on the latest tools, practices, and processes in an industry, while K-12 schools and other educational organizations offer the professional expertise to engage and teach young learners using standards within this document.

### Career Pathway Elements

**A sequence of CTE courses that build from introductory to more advanced levels**

Academic standards define what students should know and be able to do in an area of study. In career and technical education, standards are integrated with technical skill development based on industry standards. A coordinated sequence of two or more academic courses incorporating challenging state standards builds student knowledge, technical skills, and employability skills. The AFNR standards are designed to allow educators to build these courses from beginning and introductory level content to advanced skills. The AFNR standards were developed with reference to the national standards.

The sequencing of courses in AFNR fits several different career clusters, most specifically related to:





Agriculture, Food,  
and Natural  
Resources



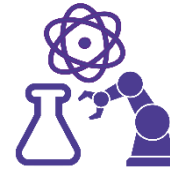
Business, Management,  
and Administration



Manufacturing



Marketing, Sales,  
and Service



Science, Technology,  
Engineering,  
and Math



Transportation,  
Distribution,  
and Logistics

### Work-Based Learning

Work-based learning (WBL) opportunities are employer-connected experiences that allow K-12 students to participate in career awareness, career exploration, and career development. Academic standards serve as the foundation of WBL and allow students to apply knowledge and technical skills to real-world projects and problems alongside professionals. Having students participate in work-based learning is a priority in Wisconsin and is reflected on DPI's School Report Cards and federal (Perkins V) accountability reports. Participation in work-based learning is only calculated if the program meets the following criteria:

1. Involves sustained interactions, either paid or unpaid, with industry or community professionals
  - *Sustained* = minimum of 90 hours, which can be rotated among employers or positions. The employer is engaged throughout the experience. It can take place in one semester, an entire year, the summer, or even a six-week period.
  - Interactions must be more than just observing and include direct communication and involvement with industry or community professionals.
2. Takes place in real workplace settings (as practicable) or simulated environments at an educational institution.
3. Fosters in-depth, firsthand engagement with the tasks required in a given career.
4. Aligns with a course (generally speaking should be a minimum of one semester). It is highly encouraged to provide credit for the work-based learning experience as well as credit for the school-based course.

5. Must include a training agreement between the student, employer/business, and school that defines the roles and responsibilities of the student, the employer, and the school.
6. Business and education partners work together to evaluate and supervise the experiences, which must be documented with training or learning plans and evaluation forms.

There are numerous work-based learning programs designed to support student mastery of competencies and also count towards accountability measures. These programs are all outlined in the [Wisconsin Guide to Implementing Career-Based Learning Experiences](#).

Agriculture, Food, and Natural Resources Education incorporates hands-on career-based learning as an essential component to a student's educational experience within AFNR. Supervised Agricultural Experiences (SAEs) are an expectation for all students within an Agriculture, Food, and Natural Resources course as part of the [SAE for All](#) initiative.

While all students in AFNR are expected to have some level of an SAE, it is important to acknowledge that these experiences may be connected to other career-based learning experiences and may be developed into work-based learning experiences such as:

- Supervised agricultural experience (SAE)
- School-based enterprise (SBE)
- Student entrepreneurial experience (SEE)
- Internship or local co-op
- State-certified employability skills co-op
- State-certified occupational program co-op
- Youth Apprenticeship – Apprenticeships may be in agriculture mechanic technician, animal fundamentals, animal/herd, arborist, crops, dairy grazer, environmental systems: basic and advanced water resources, floral/greenhouse, landscaping, plant fundamentals, and small animal/veterinarian technician.



## Career and Technical Student Organizations

Career and technical student organizations (CTSOs) develop citizenship, technical, leadership, and teamwork skills essential for students who are preparing for the workforce and further education. They enhance students' civic awareness and provide opportunities for developing social competencies and a wholesome attitude about living and working.

Wisconsin has six state and nationally recognized CTSOs that are intracurricular. In other words, they connect directly to the classroom through curriculum, activities, and community resources. All CTSOs include leadership development and competitive events where students demonstrate technical and leadership skills. CTSOs prepare young people to become productive citizens and leaders in their communities and their careers. This is done through school activities along with regional, state, and national leadership conferences and competitions. Students grow and develop through these events and receive recognition for the work they have done and the skills they have developed. CTSOs provide an exceptional extension of CTE instruction. Wisconsin's CTSOs include:



Wisconsin Association of FFA is affiliated with the National FFA Organization, the largest student-led organization in the nation with more than 945,000 members focused on growing leaders, building communities, and strengthening agriculture. FFA follows the mission statement: FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through agricultural education. Wisconsin Association of FFA was chartered in 1929, and the organization is seen as a vital component of Agriculture, Food, and Natural Resources education that is integral to the classroom setting. Students build skills through FFA competitions, conferences, and leadership opportunities directly aligned to the standards for Agriculture, Food, and Natural Resources. FFA offers experience for students beginning in grade 5, provided they are enrolled in an Agriculture, Food, and Natural Resources course, and continues to offer opportunities to students up to four National FFA Conventions following their graduation from high school. For more information on FFA, please visit the [Wisconsin Association of FFA website](#).

### **Industry-Recognized Credentials**

Industry-recognized credentials (IRCs) are certifications, credentials, or licenses that are vetted by employers and recognize skill attainment needed for recruitment, screening, hiring, retention, advancement, or to mitigate workforce shortages. Earning industry credentials while in high school helps students prove their competence and improve their employment prospects, sometimes immediately after graduation. CTE courses are designed to improve career-based learning, and many IRCs fit perfectly into the curriculum and can be added to the student's resume following certification.

### **Dual Enrollment and College Credit Opportunities**

Dual enrollment includes a variety of programs through which high school students are enrolled simultaneously in both high school and college to earn credit through each. A dual enrollment course can take place at the high school, at a college or university, or through an online or distance course. Local school districts partner with higher education partners to provide training for instructors to offer these courses, or avenues for students to participate in courses on campus or online. Successful completion of the coursework by a student will not only gain them a grade toward high school graduation, but also transferable credits for their postsecondary education.

## **Discipline Standards Structure**

*The Wisconsin Standards for Agriculture, Food, and Natural Resources follow a specific structure:*

### **Standards Formatting**

- **Discipline:** CTE program area
- **Strand:** Instructional topic within the discipline
- **Standard:** Broad statement that tells what students are expected to know or be able to do
- **Learning Priority:** Breaks down the broad statement into manageable learning pieces
- **Performance Indicator by Learning Progression:** Measurable degree to which a standard has been developed or met

## Standard Coding

Standard areas for Agriculture, Food, and Natural Resources in this code structure include:

- Agricultural, Literacy, Leadership, and Research (ALLR)
- Agribusiness (ABS)
- Animal Science (AS)
- Biotechnology (BT)
- Environmental and Natural Resources (ENR)
- Food Chemistry and Processing (FCP)
- Plant Science (PS)
- Power, Structural, and Mechanical Technology (PSMT)

## Key to Standards Coding



## Sample of Standards Table

Standard: <b>AFNR.ABS.3</b> Students will use concepts related to recordkeeping and analysis of records to manage resources.			
Learning Priority	Performance Indicators (By Learning Progression)		
	Beginning (b)	Intermediate (I)	Advanced (a)
AFNR.ABS.3.D: Maintain and interpret financial information for an agribusiness.	AFNR.ABS.3.D.b.1: Keep track of expenses and deposits.	AFNR.ABS.3.D.I.1: Report and manage accounting information in an AFNR business.	AFNR.ABS.3.D.a.1: Maintain accounting information for an AFNR business.
		AFNR.ABS.3.D.I.2: Identify and explain the impact of external economic factors on an AFNR business.	AFNR.ABS.3.D.a.2.a: Interpret financial information for an AFNR business. AFNR.ABS.3.D.a.2.b: Interpret AFNR business performance data.

## Performance Indicator by Learning Progression

The 2024 Wisconsin Standards for Career and Technical Education (CTE) mark a shift in how progress is recognized in a CTE subject area. The new standards describe three levels of proficiency or mastery of industry expectations: beginning, intermediate, and advanced. This contrasts with the 2013 CTE standards, which focused on performance indicators by three grade bands: PK-5, 6-8, and 9-12.

Given the wide range of delivery models used, CTE does not lend itself to grade bands. In other words, CTE programming may be nonexistent or robust at the elementary or middle school levels. A beginning course, for example, may be offered in any grade. The 2024 CTE standards, more appropriately, shift from looking at knowledge and skills acquired by the end of certain grade

levels to the increasing mastery a student acquires as they pursue their desired career pathway, regardless of the grade the student begins on that path. Here then are the three levels in more detail:

- Beginning: Developing awareness
- Intermediate: Building foundational knowledge and skills
- Advanced: Implementing specific knowledge and skills

Learning Priority	Performance Indicators (By Learning Progression)		
	Beginning (b)	Intermediate (i)	Advanced (a)
AFNR.ABS.3.D: Maintain and interpret financial information for an agribusiness.	AFNR.ABS.3.D.b.1: Keep track of expenses and deposits.	AFNR.ABS.3.D.i.1: Report and manage accounting information in an AFNR business.	AFNR.ABS.3.D.a.1: Maintain accounting information for an AFNR business.
		AFNR.ABS.3.D.i.2: Identify and explain the impact of external economic factors on an AFNR business.	AFNR.ABS.3.D.a.2.a: Interpret financial information for an AFNR business.  AFNR.ABS.3.D.a.2.b: Interpret AFNR business performance data.

The standards were designed to be flexible based on the unique needs of each Agriculture, Food, and Natural Resources program. Courses are meant to be aligned to the standards through the scaffolding of student learning and level of mastery desired. Each learning priority has one or more performance indicators by learning progression, reflecting a sequential flow of learning and a continuum from beginning to advanced. Course design may consist of the full continuum or may begin and end with any learning progression level. Furthermore, the performance indicator descriptors may cross over or overlap each other

from one level to the next. For example, the beginning level may include some foundational knowledge and skill-building connected to the intermediate level versus solely focusing on developing awareness.

AFNR performance indicators were written to allow the educator to build content from beginning to advanced levels, based on the design of the course. In several standards, there may be blank spaces at any point within the learning progression based on the skill development of the particular standard. Multiple performance indicators may also be found at the same learning progression level. This makes it possible to encompass the full scope of skills and knowledge relevant within the specific standard or learning priority. Educators may also experience situations where standards within different strands may be pulled into courses not directly tied to the strand. This is appropriate as many concepts cross-cut several strands and pull together the skills and knowledge in a variety of contexts. This design allows for flexibility to fit the needs of the educator, course, and district in order for students to demonstrate their knowledge of the content.

In conclusion, these standards provide a foundation for a variety of applications in each of Wisconsin's districts.