Nebraska CTE

Power, Structural, and Technology Systems Fundamentals (2021-)

Identify careers in the agricultural mechanics industry in the areas of agricultural construction, agricultural electrical systems, welding and metal fabrication, and agriculture power machinery. AFNR.HS.26.1	**a** Identify career opportunities in Agricultural Mechanics in the local community. AFNR.HS.26.1.A
	b Identify professional organizations associated with agricultural mechanics skills and related occupations. AFNR.HS.26.1.B
	c Apply information in career planning and employment situations related to agricultural mechanics. AFNR.HS.26.1.C
Model principles of a safe work environment, including safety practices. AFNR.HS.26.2	**a** Identify potential hazards in the agricultural mechanics laboratory and/or work setting. AFNR.HS.26.2.A
	b Select safety equipment and procedures for various agriculture-related activities. AFNR.HS.26.2.B
	c Demonstrate safety procedures and behavior while working in the agriculture classroom, labs, and/or work sites. AFNR.HS.26.2.C
	d Identify personal protective equipment required for various activities conducted in the agricultural mechanics laboratory and industry. AFNR.HS.26.2.D
	e Safely operate all hand tools, power tools, and equipment in the agricultural mechanics laboratory. AFNR.HS.26.2.E
Demonstrate the safe use of common tools and materials used in woodworking and agricultural construction. AFNR.HS.26.3	**a** Identify common woodworking tools used (e.g., hand tools, power tools, layout tools, measuring tools). AFNR.HS.26.3.A
	b Demonstrate the proper care and use of tools (e.g., hand tools, layout tools, measuring tools). AFNR.HS.26.3.B
	c Demonstrate appropriate techniques for restoring worn, damaged, or abused tools to good working condition. AFNR.HS.26.3.C

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Select appropriate types of lumber, fasteners, and finish materials used in woodworking and agricultural construction. AFNR.HS.26.4	**a** Describe common woods including characteristics and uses. AFNR.HS.26.4.A
	b Classify common dimensions of wood materials. AFNR.HS.26.4.B
	c Select appropriate screws, nails, bolts, and other fasteners for various uses. AFNR.HS.26.4.C
	d Compare different types of wood glues and their recommended uses. AFNR.HS.26.4.D
	e Identify proper woodworking and agricultural construction preserving/ finishing materials. AFNR.HS.26.4.E
Demonstrate knowledge of electrical principles, tools, and materials necessary for planning and installation of electrical circuits for agricultural and residential applications. AFNR.HS.26.5	**a** Describe the basic principles of electrical theory. AFNR.HS.26.5.A
	b Describe types of electrical circuits. AFNR.HS.26.5.B
	c Define electrical terms and relationship between them (e.g., watts, volts, amps and resistance). AFNR.HS.26.5.C
	d Explain the purpose of the National Electrical Code. AFNR.HS.26.5.D
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	d Explain the purpose of the National Electrical Code. AFNR.HS.26.5.D
	e Identify electrical symbols used in electrical schematics and floor plans of agricultural facilities. AFNR.HS.26.5.E
	f Use appropriate electrical symbols and follow National Electrical Code requirements for electrical schematics AFNR.HS.26.5.F
	g Demonstrate commonly used electrical tools in the agricultural industry. AFNR.HS.26.5.G
	h Identify types of electrical cable used in agricultural applications. AFNR.HS.26.5.H
	i Calculate load for specific circuit applications and describe potential hazards of overloads on a circuit. AFNR.HS.26.5.I
	j Select conductors for circuit applications based on given load, location, temperature, and distance parameters. AFNR.HS.26.5.J

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	k Compare and contrast switches, receptacles, lighting outlet devices, grounding conductors, solderless connectors, and related materials for use in agricultural and residential electric circuits. AFNR.HS.26.5.K
	l Identify steps in installing branch circuit enclosures, conductors and devices. AFNR.HS.26.5.L
Apply the operating principles of a four stroke engine, including components of and proper maintenance procedures, in accordance with the manufacturer's recommendations. AFNR.HS.26.6	a Explain how a small engine operates. AFNR.HS.26.6.A
	b Compare the similarities and differences between four-stroke-cycle engines and two-stroke-cycle engines. AFNR. HS.26.6.B
	c Interpret service and parts manuals for small engines and identify operating instructions and safety procedures for operating small engines. AFNR.HS.26.6.C
	d Identify tools commonly used for small engine service and repair. AFNR.HS.26.6.D
	e Create a maintenance calendar utilizing small engine owner's manuals. AFNR.HS.26.6.E
	f Perform basic service procedures according to manufacturer's recommendations. AFNR.HS.26.6.F
	g Compare proper maintenance procedures using service manuals from a variety of small engine manufacturers. AFNR.HS.26.6.G
Demonstrate the safe and efficient operation of agricultural tractors and related equipment. AFNR.HS.26.7	a Identify common types of machinery used in the agricultural industry. AFNR.HS.26.7.A
	b Describe the functions and purposes of common types of machinery used in the agriculture industry. AFNR.HS.26.7.B