

# Standards Correlations

## Agricultural Power Systems (8018)

Task	SOL Correlations
<b>Demonstrating Personal Qualities and Abilities</b>	
Demonstrate creativity and innovation.	<p>English: 6.1, 6.3, 6.4, 6.6, 6.7, 6.9, 7.1, 7.3, 7.4, 7.6, 7.7, 7.9, 8.1, 8.3, 8.4, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1</p> <p>Mathematics: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.10, 6.11, 6.12, 7.2, 7.3, 7.8, 7.9, 8.2, 8.4, 8.6, 8.7, 8.11, 8.12, 8.17, 8.18, A.9, AFDA.3, AFDA.4, AFDA.5, AFDA.6, AFDA.7, AFDA.8, AII.9, COM.1, COM.3, COM.4, COM.5, COM.8, DM.7, DM.1*, DM.10, DM.2*, DM.3*, PS.3*, PS.4*, PS.7*, PS.9*, PS.10*</p> <p>Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1</p>
Demonstrate critical thinking and problem solving.	<p>English: 6.1, 6.3, 6.4, 6.5, 6.6, 6.7, 6.9, 7.1, 7.3, 7.4, 7.5, 7.6, 7.7, 7.9, 8.1, 8.3, 8.4, 8.5, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1</p> <p>Mathematics: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.10, 6.11, 7.2, 7.3, 7.8, 7.12, 7.13, 8.2, 8.4, 8.8, 8.9, 8.10, 8.11, A.8, A.9, G.1, G.13, G.14, AFDA.3, AFDA.5, AFDA.8, AII.9, AII.10, AII.11, COM.1, COM.3, COM.4, COM.5, COM.8, DM.4, DM.7, DM.1*, DM.2*, DM.3*, DM.9*, PS.9*, PS.10*</p> <p>Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1</p>
Demonstrate initiative and self-direction.	<p>English: 6.1, 6.4, 6.6, 6.7, 6.9, 7.1, 7.4, 7.6, 7.7, 7.9, 8.1, 8.4, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8</p> <p>History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1</p>
Demonstrate integrity.	English: 6.1, 7.1, 8.1, 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5

Task	SOL Correlations
	History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate work ethic.	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Science: CH.1
<b>Demonstrating Interpersonal Skills</b>	
Demonstrate conflict-resolution skills.	English: 6.1, 6.2, 6.4, 6.6, 6.7, 6.9, 7.1, 7.2, 7.4, 7.6, 7.7, 7.9, 8.1, 8.2, 8.4, 8.6, 8.7, 8.9, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, VUS.1
Demonstrate listening and speaking skills.	English: 6.1, 6.2, 6.4, 6.6, 7.1, 7.2, 7.4, 7.6, 8.1, 8.2, 8.4, 8.6, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate respect for diversity.	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, USII.9, VUS.1, VUS.13, WG.1, WHI.1, WHII.1
Demonstrate customer service skills.	English: 6.1, 6.4, 6.7, 7.1, 7.4, 7.7, 8.1, 8.4, 8.7, 9.1, 9.5, 9.6, 10.1, 10.5, 10.6, 11.1, 11.5, 11.6, 12.1, 12.5, 12.6 History and Social Science: CE.1, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Collaborate with team members	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
<b>Demonstrating Professional Competencies</b>	
Demonstrate big-picture thinking.	English: 6.1, 6.4, 7.1, 7.4, 8.1, 8.4, 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5 History and Social Science: CE.1, CE.4, CE.12, GOVT.1, GOVT.15, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate career- and life-management	English: 6.1, 6.7, 7.1, 7.7, 8.1, 8.7, 9.1, 9.6, 10.1, 10.6, 11.1, 11.6, 12.1, 12.6

<b>Task</b>	<b>SOL Correlations</b>
skills.	History and Social Science: CE.1, CE.4, CE.12, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 8.4
Demonstrate continuous learning and adaptability.	English: 6.1, 6.4, 6.7, 6.9, 7.1, 7.4, 7.7, 7.9, 8.1, 8.4, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.3, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Science: BIO.1, CH.1, LS.1, PH.1, PH.4, PS.1
Manage time and resources.	English: 6.1, 6.2, 6.4, 6.7, 6.9, 7.1, 7.2, 7.4, 7.7, 7.9, 8.1, 8.2, 8.4, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.2, 11.5, 11.6, 11.8, 12.2, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.10, 6.11, 6.12, 7.2, 7.3, 7.8, 7.9, 7.10, 7.11, 7.12, 7.13, 8.4, 8.11, 8.12, 8.13, 8.14, 8.17, 8.18, A.4, A.5, A.8, A.9, AFDA.3, AFDA.4, AFDA.5, AFDA.6, AFDA.7, AFDA.8, COM.1, COM.3, COM.5, COM.8
Demonstrate information-literacy skills.	English: 6.1, 6.2, 6.4, 6.6, 6.7, 6.9, 7.1, 7.2, 7.3, 7.4, 7.6, 7.7, 7.9, 8.1, 8.2, 8.3, 8.4, 8.6, 8.7, 8.9, 9.2, 9.5, 9.6, 9.8, 10.2, 10.5, 10.6, 10.8, 11.2, 11.5, 11.6, 11.8, 12.2, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.10, 6.11, 7.8, 7.9, 8.11, 8.12, A.8, A.9, AFDA.3, AFDA.4, AFDA.6, AFDA.7, AFDA.8, DM.8, PS.1*, PS.2*, PS.3*, PS.4*, PS.7*, PS.8*, PS.9*, PS.10* Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PH.1, PS.1
Demonstrate an understanding of information security.	English: 6.1, 6.2, 6.3, 6.4, 6.6, 6.7, 6.8, 6.9, 7.1, 7.2, 7.3, 7.4, 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3, 8.4, 8.6, 8.7, 8.8, 8.9, 9.1, 9.2, 9.5, 9.6, 9.8, 10.1, 10.2, 10.5, 10.6, 10.8, 11.1, 11.2, 11.5, 11.6, 11.8, 12.1, 12.2, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: COM.10

<b>Task</b>	<b>SOL Correlations</b>
Maintain working knowledge of current information-technology (IT) systems.	English: 6.1, 6.3, 6.4, 6.6, 6.9, 7.1, 7.3, 7.4, 7.6, 7.9, 8.1, 8.3, 8.4, 8.6, 8.9 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 7.8, COM.1, COM.2, COM.7, COM.9, COM.10, COM.11, COM.16, COM.18, PS.17 Science: BIO.1, CH.1, ES.1, PH.1
Demonstrate proficiency with technologies, tools, and machines common to a specific occupation.	History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.10, 6.11, 7.9, 8.4, A.7, A.8, A.9, AFDA.1, AFDA.3, AFDA.5, AII.4, AII.7, AII.9, COM.1, COM.7, COM.10, COM.11, COM.12, COM.16 Science: CH.1, ES.1, LS.1, PH.1, PS.1
Apply mathematical skills to job-specific tasks.	English: 6.4, 6.6, 6.7, 7.4, 7.6, 7.7, 8.4, 8.6, 8.7, 9.5, 9.6, 10.5, 10.6, 11.5, 11.6, 12.5, 12.6 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.1, 6.2, 6.5, 6.6, 6.12, 6.13, 6.14, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.8, 7.9, 7.11, 7.12, 7.13, 8.4, 8.5, 8.6, 8.8, 8.9, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 8.18, A.1, A.3, A.4, A.5, A.7, A.8, A.9, AFDA.1, AFDA.3, AFDA.5, AFDA.8, AII.3, AII.7, AII.9, AII.10, COM.1, COM.7 Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PH.1, PS.1
Demonstrate professionalism.	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate reading and writing skills.	English: 6.1, 6.6, 6.7, 7.1, 7.6, 7.7, 8.1, 8.6, 8.7, 9.1, 9.5, 9.6, 9.7, 10.1, 10.5, 10.6, 10.7, 11.1, 11.5, 11.6, 11.7, 12.1, 12.5, 12.6, 12.7 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Science: 6.1, PH.1, PS.1
Demonstrate workplace safety.	English: 6.4, 7.4, 8.4, 9.5, 10.5, 11.5, 12.5 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Science: CH.1
<b>Examining All Aspects of an Industry</b>	

<b>Task</b>	<b>SOL Correlations</b>
Examine aspects of planning within an industry/organization.	History and Social Science: GOVT.16
Examine aspects of management within an industry/organization.	
Examine aspects of financial responsibility within an industry/organization.	
Examine technical and production skills required of workers within an industry/organization.	
Examine principles of technology that underlie an industry/organization.	
Examine labor issues related to an industry/organization.	History and Social Science: GOVT.16
Examine community issues related to an industry/organization.	History and Social Science: GOVT.16
Examine health, safety, and environmental issues related to an industry/organization.	History and Social Science: GOVT.16
<b>Addressing Elements of Student Life</b>	

<b>Task</b>	<b>SOL Correlations</b>
Identify the purposes and goals of the student organization.	
Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.	
Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.	
Identify Internet safety issues and procedures for complying with acceptable use standards.	
<b>Exploring Work-Based Learning</b>	
Identify the types of work-based learning (WBL) opportunities.	
Reflect on lessons learned during the WBL experience.	
Explore career opportunities related to the WBL experience.	
Participate in a WBL experience, when appropriate.	

<b>Task</b>	<b>SOL Correlations</b>
<b>Exploring Leadership Opportunities through FFA</b>	
Identify the role of supervised agricultural experiences (SAEs) in agricultural education.	English: 9.3, 9.5, 10.3, 10.5
Participate in an SAE.	English: 9.5, 9.8, 10.5, 10.8
Identify the benefits and responsibilities of FFA membership.	English: 9.5, 9.6, 9.7, 9.8, 10.5, 10.6, 10.7, 10.8
Describe leadership characteristics and opportunities as they relate to agriculture and FFA.	English: 9.5, 10.5 History and Social Science: VUS.8, VUS.9, VUS.10, VUS.11, WHIL.8, WHIL.10, WHIL.11
Apply for an FFA degree and/or an agricultural proficiency award.	English: 9.5, 10.5
<b>Applying Safety Practices in the Agricultural Mechanics Lab</b>	
Demonstrate safe practices in the agricultural mechanics lab.	English: 10.5, 11.5, 12.5 History and Social Sciences: WHIL.8; VUS.8; Govt 7, 8, 9 Science: CH.1
Identify marked safety areas and posted evacuation routes.	English: 10.5, 11.5, 12.5 History and Social Sciences: WHIL.8; VUS.8; Govt 7, 8, 9 Science: CH.1
Explain the use of eye wash stations.	English: 10.5, 11.5, 12.5

<b>Task</b>	<b>SOL Correlations</b>
	History and Social Sciences: WHII.8; VUS.8; Govt 7, 8, 9  Science: CH.1
Demonstrate knowledge of SDS.	English: 10.5, 11.5, 12.5  History and Social Sciences: WHII.8; VUS.8; Govt 7, 8, 9  Science: CH.1
Use protective clothing and equipment.	English: 10.5, 11.5, 12.5  History and Social Sciences: WHII.8; VUS.8; Govt 7, 8, 9  Science: CH.1
Demonstrate the use, storage, and disposal of chemicals.	English: 10.5, 11.5, 12.5  History and Social Sciences: WHII.8; VUS.8; Govt 7, 8, 9  Science: CH.1
Explain the use of fire protection equipment.	English: 10.5, 11.5, 12.5  History and Social Sciences: WHII.8; VUS.8; Govt 7, 8, 9  Science: CH.1
Demonstrate the safe use of standard and metric hand tools.	English: 10.5, 11.5, 12.5
Demonstrate the safe use of power tools and equipment.	English: 10.5, 11.5, 12.5
<b>Using Precision Measurement Tools</b>	
Identify hazards associated with using and servicing farm machinery and equipment.	English: 10.5, 11.5, 12.5

<b>Task</b>	<b>SOL Correlations</b>
Identify hazards when operating or servicing a tractor.	English: 10.5, 11.5, 12.5
Identify hazards when operating or servicing a combine.	English: 10.5, 11.5, 12.5
Identify hazards when operating or servicing a hay baler.	English: 10.5, 11.5, 12.5
Identify hazards when operating or servicing tillage equipment.	English: 10.5, 11.5, 12.5
Identify precision measuring tools.	
Demonstrate the use of precision-measuring tools.	English: 10.5, 11.5, 12.5
<b>Using Fuels, Lubricants, and Fluids</b>	
Describe safe use, handling, storage, labeling, and disposal of fuels and lubricants.	English: 10.5, 11.5, 12.5 History and Social Sciences: WHII.8; VUS.8; Govt 7, 8, 9
Select fuels based on engine types.	
Explain the purpose of crankcase oil, its properties, and selection criteria.	English: 10.5, 11.5, 12.5
Select gear oil/lubricant based on the application and	English: 10.5, 11.5, 12.5

<b>Task</b>	<b>SOL Correlations</b>
manufacturer recommendations.	
Select hydraulic fluid/oil based on the application and manufacturer recommendations.	English: 10.5, 11.5, 12.5
Select bearing grease based on the application and manufacturer recommendations.	English: 10.5, 11.5, 12.5
<b>Understanding the Fundamentals of Engines</b>	
Explain the basic operating principles of an internal combustion engine.	English: 10.5, 11.5, 12.5 Science: CH.3
Explain the interrelationship of parts during each stroke for an internal combustion engine.	English: 10.5, 11.5, 12.5
Explain the differences between a two-stroke and a four-stroke engine.	English: 10.5, 11.5, 12.5
Explain the differences between the spark-ignition gasoline and compression-ignition diesel engines.	English: 10.5, 11.5, 12.5
Research the use of batteries in powering agricultural equipment.	English: 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Research alternative energies.	English: 10.5, 10.8, 11.5, 11.8, 12.5, 12.8 Science: ES.6

<b>Task</b>	<b>SOL Correlations</b>
Analyze alternative energy sources and potential environmental and economic benefits.	English: 10.5, 11.5, 12.5 Science: ES.6
Disassemble an engine.	English: 10.5, 11.5, 12.5
Reassemble an engine.	English: 10.5, 11.5, 12.5
Troubleshoot an engine.	English: 10.5, 11.5, 12.5
Select repair parts.	
<b>Identifying Fundamentals of Powertrains</b>	
Explain the function and operating principles of the powertrain and its components.	
Remove powertrain components.	English: 10.5, 11.5, 12.5
Disassemble powertrain components.	English: 10.5, 11.5, 12.5
Rebuild powertrain components.	English: 10.5, 11.5, 12.5
<b>Applying Knowledge of Hydraulics and Pneumatics</b>	
Identify safety procedures when working on hydraulic and pneumatic systems.	English: 10.5, 11.5, 12.5
Analyze the application of hydraulics and pneumatics in agriculture.	English: 10.5, 11.5, 12.5
Identify the components and connections in a hydraulic system and the fundamental principles of how hydraulic systems operate.	English: 10.5, 11.5, 12.5

<b>Task</b>	<b>SOL Correlations</b>
Explain terminology and schematic symbols used for a hydraulic system and pneumatic system.	English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
Explain hydraulic schematics.	English: 10.3, 11.3, 12.3
Explain the difference between open and closed center systems and their advantages.	
Replace hydraulic pumps, valves, cylinders, and hoses.	English: 10.5, 11.5, 12.5
<b>Understanding Agricultural Machinery and Equipment Electrical Systems</b>	
Explain how electricity is used in agriculture.	English: 10.5, 11.5, 12.5 Science: PH.11
Identify electrical and electronic components used in agricultural machinery and equipment.	English: 10.5, 11.5, 12.5 Science: PH.11
Explain the application of safety switches on agricultural machinery and equipment.	English: 10.5, 11.5, 12.5
Troubleshoot and repair a charging system.	English: 10.5, 11.5, 12.5 Science: PH.11
Troubleshoot and repair a safety system.	English: 10.5, 11.5, 12.5 Science: PH.11
Repair an operating system.	English: 10.5, 11.5, 12.5
<b>Identifying the Functions of Electrical Controls</b>	
Describe the function and importance of controls and	

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control circuits in the operation of electrical equipment.	
Identify the characteristics of automated and non-automated control systems.	
<b>Applying Protective Coatings</b>	
Explain various paint application methods.	
Prepare equipment for painting.	English: 10.5, 11.5, 12.5
Apply protective coatings.	English: 10.5, 11.5, 12.5
Prepare steam and/or high-pressure washer.	English: 10.5, 11.5, 12.5
Clean equipment with steam cleaner and/or high-pressure washer.	English: 10.5, 11.5, 12.5
<b>Performing Welding/Cutting Operations</b>	
Perform grinding operations with a pedestal/bench grinder and/or portable/hand-held disc/angle grinder.	English: 10.5, 11.5, 12.5
Perform welding operations.	English: 10.5, 11.5, 12.5
Cut metals.	English: 10.5, 11.5, 12.5