

Standards Correlations

Introduction to Power, Structural, and Technical Systems (8016)

Task	SOL Correlations
Demonstrating Personal Qualities and Abilities	
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>

Task	SOL Correlations
	History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
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 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
Demonstrating Interpersonal Skills	
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
Demonstrating Professional Competencies	
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

Task	SOL Correlations
	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 skills.	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 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

Task	SOL Correlations
	Mathematics: COM.10
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

Task	SOL Correlations
Examining All Aspects of an Industry	
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

Task	SOL Correlations
Addressing Elements of Student Life	
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.	
Exploring Work-Based Learning	
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.	

Task	SOL Correlations
Participate in a WBL experience, when appropriate.	
Exploring Leadership Opportunities through FFA	
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
Applying Safety Practices in the Agricultural Mechanics Lab	
Demonstrate safe practices in the agricultural mechanics lab.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WHII 8; VUS 8; Govt 7, 8, 9 Science: CH.1, BIO.1
Identify marked safety areas and posted evacuation routes.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WHII 8; VUS 8; Govt 7, 8, 9

Task	SOL Correlations
Explain the use of eye wash stations.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WHII 8; VUS 8; Govt 7, 8, 9 Science: CH.1
Demonstrate knowledge of SDS.	English: 9.5, 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: 9.5, 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: 9.5, 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: 9.5, 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: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WHII 8; VUS 8; Govt 7, 8, 9
Demonstrate the safe use of power tools and equipment.	English: 9.5, 10.5, 11.5, 12.5

Task	SOL Correlations
	History and Social Sciences: WHII 8; VUS 8; Govt 7, 8, 9
Use standard and metric precision-measuring tools.	English: 9.5, 10.5, 11.5, 12.5
Exploring Alternative Energies	
Identify alternative energy sources.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: ES.6
Describe the use of batteries to power agricultural equipment.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII 14; VUS 14; Govt 7, 8, 9, 12
Research alternative fuels.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8 History and Social Science: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: ES.6
Understanding Agricultural Machinery and Equipment Safety and Operation	
Identify all major tools and equipment and their applications.	English: 9.5, 10.5, 11.5, 12.5
Identify the operation of agricultural machinery and equipment.	English: 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5

Task	SOL Correlations
Explain safe highway operation of agricultural machinery.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WHII 8; VUS 8; Govt 7, 8, 9
Conduct pre- and/or post-operation inspection of tractor and equipment.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WHII 8; VUS 8; Govt 7, 8, 9
Conduct daily service and care of tractor and equipment.	
Explain how to safely connect an attachment and/or implement.	English: 9.5, 10.5, 11.5, 12.5
Understanding Precision Agricultural Management	
Research technologies used in precision agricultural management.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8 Science: ES.1
Explain the procedure for operating a GPS receiver.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII 14; VUS 14; Govt 7, 8, 9, 12
Demonstrate the ability to collect data and apply that data in developing a map.	English: 9.5, 9.6, 10.5, 10.6, 11.5, 11.6, 12.5, 12.6 History and Social Science: WHII 14; VUS 14; Govt 7, 8, 9, 12 Mathematics: A.4, AII.3, AII.4, T.8, MA.6, MA.8
Identifying Fundamentals of Engines	

Task	SOL Correlations
Identify the operating principles of an internal combustion engine.	English: 9.5, 10.5, 11.5, 12.5
Explain the differences between a two-stroke and a four-stroke engine.	English: 9.5, 10.5, 11.5, 12.5
Explain the differences between gasoline and diesel engines.	English: 9.5, 10.5, 11.5, 12.5
Understanding Fundamentals of Drive Systems	
Identify the function and operating principles of the power train.	
Differentiate between power take-off (PTO) systems.	English: 9.5, 10.5, 11.5, 12.5
Explain the operation of final drives.	English: 9.5, 10.5, 11.5, 12.5
Explain the operation of planetary gears.	English: 9.5, 10.5, 11.5, 12.5 Mathematics: A.1
Explain the operation of inboard and outboard brakes.	English: 9.5, 10.5, 11.5, 12.5
Troubleshoot drive system components.	English: 9.5, 10.5, 11.5, 12.5
Understanding the Fundamentals of Hydraulics	
Identify the application of hydraulics in agriculture.	English: 9.5, 10.5, 11.5, 12.5
Explain the components of a hydraulic system.	English: 9.5, 10.5, 11.5, 12.5
Understanding Agricultural Machinery Electrical Systems	

Task	SOL Correlations
Explain the application of safety switches on agricultural machines.	English: 9.5, 10.5, 11.5, 12.5
Explain the application of electricity in agricultural equipment.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.11
Completing Plumbing Practices for Agricultural Structures	
Identify materials used in plumbing.	English: 9.5, 10.5, 11.5, 12.5
Identify pipe fittings by type.	English: 9.5, 10.5, 11.5, 12.5
Assemble plastic pipe.	English: 9.5, 10.5, 11.5, 12.5
Conducting Concrete and Masonry Practices for Agricultural Structures	
Identify materials for concrete construction.	English: 9.5, 10.5, 11.5, 12.5
Calculate the quantity and cost of materials for a job.	Mathematics: A.1, G.3
Mix concrete.	English: 9.5, 10.5, 11.5, 12.5
Place concrete in forms.	English: 9.5, 10.5, 11.5, 12.5
Finish concrete slabs.	English: 9.5, 10.5, 11.5, 12.5
Planning for and Conducting Carpentry Practices for Agricultural Structures	
Identify site planning considerations for agricultural structures.	English: 9.5, 10.5, 11.5, 12.5 Mathematics: A.6
Use plans and working drawings.	English: 9.5, 10.5, 11.5, 12.5
Figure a bill of materials.	Mathematics: A.1
Construct an agricultural structure or project.	English: 9.5, 10.5, 11.5, 12.5
Performing Electrical Operations for Agricultural Structures	

Task	SOL Correlations
Explain the history, use, and function of electrical energy in agriculture.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WHII 8; VUS 8 Mathematics: A.4, AII.3 Science: PH.11
Demonstrate electrical wiring.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.11
Performing Metal Fabrication Operations for Agricultural Structures	
Identify safe practices in arc welding.	English: 9.5, 10.5, 11.5, 12.5
Identify types of electrodes, filler rods, and fluxes.	English: 9.5, 10.5, 11.5, 12.5
Identify metals.	
Prepare equipment and materials for welding.	English: 9.5, 10.5, 11.5, 12.5
Perform welding operations.	English: 9.5, 10.5, 11.5, 12.5
Performing Cold Metal Work for Agricultural Structures	
Identify safety practices for metal striking and machine tools.	
Drill holes, using a metal drill bit.	English: 9.5, 10.5, 11.5, 12.5
Use metal files and metal cutting tools.	English: 9.5, 10.5, 11.5, 12.5
Determine tap and die sizes.	
Cut threads with tap and die.	English: 9.5, 10.5, 11.5, 12.5
Reconditioning Tools	

Task	SOL Correlations
Identify safe practices for using keen edge tools and grinding equipment.	English: 9.5, 10.5, 11.5, 12.5
Perform grinding operations with a pedestal/bench grinder and/or portable/hand-held disc/angle grinder.	English: 9.5, 10.5, 11.5, 12.5
Sharpen common tools.	English: 9.5, 10.5, 11.5, 12.5
Identify appropriate shapes and angles of cutting edges for wood and metal cutting tools.	English: 9.5, 10.5, 11.5, 12.5