Standards Correlations

Cybersecurity in Food and Agriculture (8074)

Task	SOL Correlations
Demonstrating Personal Qualities and Abilities	
Demonstrate creativity and innovation.	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 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1 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* Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1
Demonstrate critical thinking and problem solving.	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 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 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* Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1

Task	SOL Correlations
Demonstrate initiative and self-direction.	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 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

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
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 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

Task	SOL Correlations
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
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

Task	SOL Correlations
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

Examining All Aspects of an Industry

Task	SOL Correlations
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.	

Task	SOL Correlations
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
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, WHII.8, WHII.10, WHII.11
Apply for an FFA degree and/or an agricultural proficiency award.	English: 9.5, 10.5
Understanding Cybersecurity in Food and Agriculture	
Identify the Department of Homeland Security's (DHS) 16 critical infrastructure sectors.	English: 10.5, 11.5, 12.5 History and Social Science: GOVT.12, VUS.14, WHII.15
Analyze the interdependence among the commercial facilities, financial services, and food and agriculture (FA) sectors.	English: 10.5, 11.5, 12.5
Define *asset*.	English: 10.3, 11.3, 12.3
Define *threat*.	English: 10.3, 11.3, 12.3
Define *vulnerability*.	English: 10.3, 11.3, 12.3
Define *risk*.	English: 10.3, 11.3, 12.3
Compare food defense, food safety, and food security.	English: 10.5, 11.5, 12.5

Task	SOL Correlations
Explain intentional and unintentional food contamination and disruption.	English: 10.5, 11.5, 12.5
Exploring Cybersecurity Vulnerabilities in Agricultural Production	
Identify cybersecurity vulnerabilities and threats in animal production systems.	English: 10.5, 11.5, 12.5
Explain cybersecurity vulnerabilities and threats in animal systems related to health.	English: 10.5, 11.5, 12.5
Explain cybersecurity vulnerabilities in animal feed systems.	English: 10.5, 11.5, 12.5
Identify cybersecurity vulnerabilities regarding pharmaceuticals.	English: 10.5, 11.5, 12.5
Explain cybersecurity vulnerabilities in plant production systems.	English: 10.5, 11.5, 12.5
Examining Potential Threats and Risks in Food and Agriculture	
Identify cybersecurity threats and risks in water sources.	English: 10.5, 11.5, 12.5
Identify cybersecurity threats and risks related to power.	English: 10.5, 11.5, 12.5
Identify cybersecurity threats related to chemicals.	English: 10.5, 11.5, 12.5
Identify cybersecurity threats related to facilities.	English: 10.5, 11.5, 12.5
Identify cybersecurity threats related to equipment.	English: 10.5, 11.5, 12.5
Propose methods to ensure equipment (e.g., drones) is resistant to cyberattack.	English: 10.5, 11.5, 12.5
Outline the risks associated with fuel supply disruption.	English: 10.5, 11.5, 12.5
Explain the steps to identify false information on sensor-based systems.	English: 10.5, 11.5, 12.5
Examining Precision Agriculture	

Task	SOL Correlations
Define *precision agriculture* (PA).	English: 10.3, 11.3, 12.3
Describe the technologies used in precision agriculture and precision agronomics.	English: 10.5, 11.5, 12.5
Synthesize data gathered using leading technology (e.g., GPS, GIS, cellular and wireless communication, software).	English: 10.5, 11.5, 12.5 History and Social Science: GOVT.1, VUS.1, WHII.1 Mathematics: AFDA.8, PS.1*, PS.8* Science: BIO.1, CH.1, ES.1
Exploring Cybersecurity in Agricultural Processing	
Identify facilities that engage in food processing.	English: 10.5, 11.5, 12.5
Identify facilities that engage in beverage production.	English: 10.5, 11.5, 12.5
Identify animal slaughtering and processing facilities.	English: 10.5, 11.5, 12.5
Identify facilities engaged in the manufacture of food and feed for animals.	English: 10.5, 11.5, 12.5
Explain how machinery and equipment maintenance plans can reveal cybersecurity intrusion.	English: 10.5, 11.5, 12.5
Explain how animal, plant, soil, and/or mechanical test results can reveal cybersecurity intrusion.	English: 10.5, 11.5, 12.5
Explain how point source and nonpoint source pollution can endanger food production capabilities.	English: 10.5, 11.5, 12.5
Investigating Cybersecurity in Agricultural Marketing and Distribution	
Describe types of advertising media used by agricultural businesses.	English: 10.5, 11.5, 12.5 History and Social Science: GOVT.1, GOVT.6, GOVT.8, GOVT.9, GOVT.16, VUS.1, VUS.10, VUS.11, VUS.13, VUS.14

Task	SOL Correlations
Identify wholesale and retail distribution of agricultural and food products.	English: 10.5, 11.5, 12.5
Identify agricultural products transportation systems.	English: 10.5, 11.5, 12.5
Identify methods of distribution disruption.	English: 10.5, 11.5, 12.5
Identify risks in labeling and barcodes.	English: 10.5, 11.5, 12.5
Identify risks associated with agricultural food product storage facilities.	English: 10.5, 11.5, 12.5
Explain how to create a secure customer relationship management (CRM) database.	English: 10.5, 11.5, 12.5 History and Social Science: GOVT.16
Maintaining Cybersecurity in Agricultural Business Management and Financing	
Keep accurate business records.	English: 10.5, 11.5, 12.5
Explain how cyber intrusion might affect an agricultural enterprise's budget.	English: 10.5, 11.5, 12.5
Describe management controls used to secure information, operations, and prevent breaches of security.	English: 10.5, 11.5, 12.5
Identify financial management tools and strategies related to cybersecurity.	English: 10.5, 11.5, 12.5 Mathematics: A.1, A.4, COM.1, COM.7
Identify agricultural applications of leading technology (e.g., GPS, GIS, cellular and wireless communication, software).	English: 10.5, 11.5, 12.5
Explain how the creation of records and correspondence, using word processing software, spreadsheets, databases, and email, exposes the creator to cyber threats.	English: 10.5, 11.5, 12.5
Back up and restore files.	English: 10.5, 11.5, 12.5

Task	SOL Correlations
Identify methods of preventing importation of computer viruses.	English: 10.5, 11.5, 12.5
Explain the basics of financial compliance.	English: 10.5, 11.5, 12.5
Explain the effects of identity theft.	English: 10.5, 11.5, 12.5
Explain the effects of intellectual property (IP) theft.	English: 10.3, 10.5, 11.5, 12.5
Predict indicators of commodity stock manipulation.	English: 10.5, 11.5, 12.5
Research historical precedents of stock/credit manipulation.	English: 10.8, 11.8, 12.8
Identify risks of cyberattacks on different producer coalitions.	English: 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Identifying Cybersecurity Laws Related to the Food and Agriculture Industry	
Identify national and international cybersecurity laws and policies related to agricultural enterprises.	English: 10.5, 10.8, 11.5, 11.8, 12.5 History and Social Science: GOVT.12
Identify regulatory, oversight, and industry organizations in the agriculture and food sectors.	English: 10.5, 10.8, 11.5, 11.8, 12.5, 12.8 History and Social Science: GOVT.14, GOVT.15
Explain the Economic Espionage Act.	English: 10.3, 11.3, 12.3
Explain the importance of the 2017 Securing our Agriculture and Food Act.	English: 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Identify the costs associated with litigation in cybersecurity cases.	English: 10.5, 11.5, 12.5
Investigating Future Trends in Agricultural Cybersecurity	
Identify the advantages and disadvantages of the Internet of Things (IoT).	English: 10.5, 11.5, 12.5
Research trends in automation and artificial intelligence (AI) control.	English: 10.8, 11.8, 12.8

Task	SOL Correlations
Exploring Opportunities for Employment in Cybersecurity	
Research educational requirements for cybersecurity jobs in agriculture.	English: 10.8, 11.8, 12.8
Identify careers associated with cybersecurity in agriculture.	English: 10.5, 11.5, 12.5
Participate in a work-based learning opportunity related to cybersecurity in an agricultural enterprise.	English: 10.1, 11.1, 12.1
Conduct research on cybersecurity in the food and agriculture industries.	English: 10.8, 11.8, 12.8
Conduct an oral presentation on a subject related to cybersecurity in the food and agriculture industries, using presentation software.	English: 10.1, 11.1, 12.1 Mathematics: COM.12