

# Standards Correlations

## Introduction to Technology and Engineering

(8480/6 weeks)

(8481/9 weeks)

(8484/12 weeks)

(8482/18 weeks)

(8483/36 weeks)

Task	SOL Correlations	STEL and TSA Correlations
<b>Demonstrating Personal Qualities and Abilities</b>		
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	

Task	SOL Correlations	STEL and TSA Correlations
	<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.	<p>English: 6.1, 7.1, 8.1, 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5</p> <p>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</p>	
Demonstrate work ethic.	<p>English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1</p>	

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	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	

Task	SOL Correlations	STEL and TSA Correlations
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	

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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	
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	

Task	SOL Correlations	STEL and TSA Correlations
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>Addressing Elements of Student Life</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,		

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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>Introducing Technology</b>		
Define <i>technology</i> .	English: 6.4, 7.4, 8.4  History and Social Sciences: WG 17,  Science: PS.1, LS.1,6.1	STEL 1  TSA:  Electrical Applications

Task	SOL Correlations	STEL and TSA Correlations
		Essays on Technology Medical Technology Technology Bowl VEX IQ Robotics
Identify historical examples of technology.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17	STEL 1, 6 TSA: Inventions and Interventions Technology Bowl
Identify how technologies have emerged through the use of engineering.	English: 6.6, 7.6, 8.6	STEL 1
Research careers and the technologies used in them.	English: 6.6, 6.9, 7.6, 7.9, 8.6, 8.9	STEL 3
<b>Investigating the Effects of Technology</b>		
Describe how society affects technology and technology affects society.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17 Science: PS.1	STEL 5



<b>Task</b>	<b>SOL Correlations</b>	<b>STEL and TSA Correlations</b>
Analyze how an invention or innovation was influenced by its historical context and future need.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17	STEL 6
Identify emerging technologies.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17 Science: PS.1	STEL 1,6
Predict future technological changes.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17	STEL 1, 4, 5, 6
<b>Examining Resources of Technology</b>		
Identify resources used in technology and engineering.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17 Science: 6.2, 6.9	STEL 2
Identify the six simple machines that make mechanical technology work.	English: 6.6, 7.6, 8.6 Science: PS.10	STEL 3
Differentiate between types of materials.	English: 6.6, 7.6, 8.6	STEL 2
Select materials based on their properties	English: 6.3, 7.3, 8.3	TSA:

Task	SOL Correlations	STEL and TSA Correlations
when designing a technology.		Biotechnology Children's Stories
Demonstrate the safe use of a minimum of three tools and/or pieces of equipment as part of the design process.	English: 6.6, 6.9, 7.6, 7.9, 8.6, 8.9	STEL 8  TSA:  Practice Safety in Middle School TSA events
Explain the ethical and moral use of technologies.	English: 6.6, 7.6, 8.6  Science: LS.12	STEL 1, 3, 4, 5  TSA:  Essays on Technology  Technology Bowl
Demonstrate types of measuring.	Science: PS.1, LS.1, 6.1	STEL 8  TSA:  Dragster Design  Flight  Problem Solving

Task	SOL Correlations	STEL and TSA Correlations
Create sketches and drawings.	English: 6.3, 7.3, 8.3	STEL 2, 8  TSA:  CAD Foundations
<b>Designing Solutions</b>		
Describe the Virginia Department of Education (VDOE) engineering design process.	English: 6.4, 6.6, 6.9, 7.4, 7.6, 7.9, 8.4, 8.6, 8.9  Science: PS.1	STEL 7  TSA:  Dragster Design  Flight  Problem Solving
Demonstrate the use of an engineering design process.	English: 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8	STEL 7  TSA:  Dragster Design  Flight  Mechanical Engineering
<b>Using the Engineering Design Process</b>		
Define the goal of a challenge.	English: 6.4, 6.6, 7.4, 7.6, 8.4, 8.6	STEL 1, 3, 7

Task	SOL Correlations	STEL and TSA Correlations
		TSA: Dragster Design Flight Mechanical Engineering
Design a device using criteria and constraints.	English: 6.2, 6.3, 6.4, 7.2, 7.3, 7.4, 8.2, 8.3, 8.4	STEL 2, 7 TSA: Dragster Design Flight Mechanical Engineering
Evaluate viable solutions.	English: 6.4, 6.6, 7.4, 7.6, 8.4, 8.6	STEL 7 TSA: Dragster Design Flight Inventions and Innovations Mechanical Engineering
Select a solution.	English: 6.6, 7.6, 8.6	STEL 7, 8

Task	SOL Correlations	STEL and TSA Correlations
		TSA:  Dragster Design  Flight  Inventions and Innovations  Mechanical Engineering
Plan the model or prototype.	English: 6.4, 6.6, 7.4, 7.6, 8.4, 8.6	STEL 7, 8  TSA:  Dragster Design  Flight  Inventions and Innovations  Medical Technology  Mechanical Engineering
Produce a model or prototype.	Mathematics: 6.1	STEL 7, 8  TSA:  Dragster Design  Flight

Task	SOL Correlations	STEL and TSA Correlations
		Inventions and Innovations Medical Technology Mechanical Engineering
Assess the design.	English: 6.6, 7.6, 8.6 Mathematics: 6.10, 6.11, 7.9, 8.12, 8.13	STEL 7 TSA: Biotechnology Dragster Design Flight Inventions and Innovations Medical Technology Mechanical Engineering
Describe how the solution could be improved.	English: 6.6, 7.6, 8.6	STEL 7 TSA: Biotechnology Dragster Design Flight

Task	SOL Correlations	STEL and TSA Correlations
		Inventions and Innovations Medical Technology Mechanical Engineering
Communicate the results.	English: 6.1, 6.6, 6.7, 7.1, 7.6,7.7, 8.1, 8.6, 8.7	STEL 7, 8 TSA: Challenging Technology Issues Essays on Technology Prepared Speech
Use the engineering design process as part of a team.	English: 6.6, 7.6, 8.6	STEL 7 TSA: Biotechnology Dragster Design Flight Inventions and Innovations Medical Technology

Task	SOL Correlations	STEL and TSA Correlations
		Mechanical Engineering
<b>Examining Systems</b>		
Illustrate how processes change inputs to outputs in any system.	English: 6.2, 6.6, 7.2, 7.6, 8.2, 8.6	STEL 2  TSA:  Inventions and Innovations
Identify the parts of a system within a device.	English: 6.4, 6.6, 7.4, 7.6, 8.4, 8.6	STEL 2  TSA:  Technology Bowl
<b>Identifying the Contexts of Technology and Engineering</b>		
Identify contexts of technology and engineering.	English: 6.6, 7.6, 8.6  Science: PS.5	STEL 1,3  TSA:  Electrical Applications  Essays on Technology  Inventions and Innovations  Medical Technology  Technology Bowl  VEX IQ Robotics



Task	SOL Correlations	STEL and TSA Correlations
Describe the energy and power context of technology and engineering.	<p>English: 6.6, 7.6, 8.6</p> <p>History and Social Sciences: WG 16, 17</p> <p>Science: PS.5, 6.2, 6.9</p>	<p>STEL 1,2,3</p> <p>TSA:</p> <p>Biotechnology</p> <p>Children's Stories</p> <p>Electrical Applications</p> <p>Geospatial Technology (VA only)</p> <p>Mechanical Engineering</p>
Describe the medical and health-related technologies contexts of technology and engineering.	<p>English: 6.6, 7.6, 8.6</p> <p>History and Social Sciences: WG 16, 17</p>	<p>STEL 1,3</p> <p>TSA:</p> <p>Medical Technology</p>
Describe the agricultural and biological technologies contexts of technology and engineering.	<p>English: 6.6, 7.6, 8.6</p> <p>History and Social Sciences: WG 16, 17</p> <p>Science: LS.12</p>	<p>STEL 1,3</p> <p>TSA:</p> <p>Biotechnology</p>
Describe the information and communication contexts of technology and engineering.	<p>English: 6.6, 7.6, 8.6</p> <p>History and Social Sciences: WG 16, 17</p>	<p>STEL 1,3</p> <p>TSA:</p> <p>Data Science and Analytics</p>

Task	SOL Correlations	STEL and TSA Correlations
	Mathematics: 6.10, 6.11, 7.9, 8.12, 8.13	
Describe the built environment contexts of technology and engineering.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17	STEL 1,3 TSA: CAD Foundations Geospatial Technology (VA only)
Describe the transportation and logistics contexts of technology and engineering.	English: 6.6, 7.6, 8.6 History and Social Sciences: WG 16, 17	STEL 1,3 TSA: Geospatial Technology (VA only)
Describe the material conversion and processing contexts of technology and engineering.	English: 6.4, 6.6, 7.4, 7.6, 8.4, 8.6 History and Social Sciences: WG 16, 17	STEL 1,3 TSA: Inventions and Innovations
Describe the computation, automation, AI, and robotics contexts of technology and engineering.	English: 6.4, 6.6, 7.4, 7.6, 8.4, 8.6 History and Social Sciences: WG 16, 17	STEL 1,3 TSA: Mechanical Engineering