

# 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	

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

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



<b>Task</b>	<b>SOL Correlations</b>	<b>STEL and TSA Correlations</b>
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