

Standards Correlations

Electronics Systems I

8417 18 weeks

8416 36 weeks

Task	SOL Correlations	ITEEA Correlations	TSA 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,		

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
	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		
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	ITEEA Correlations	TSA 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		
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		

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
	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		
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		

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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			
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		

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
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	ITEEA Correlations	TSA Correlations
Participate in a WBL experience, when appropriate.			
Introducing the Field of Electronics			
Research occupational opportunities.	<p>English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8</p> <p>History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1 GOVT.1</p>	5J. Design an appropriate technology for use in a different culture.	STEM Careers (Virginia TSA only)
Demonstrate the use of electronic lab equipment.	<p>English: 9.1, 10.1, 11.1, 12.1</p> <p>Science: PH.1</p>	8P. Apply appropriate methods to diagnose, adjust, and repair systems to ensure precise, safe and proper functionality.	Principles of Technology (Virginia TSA only)
Identify the OSHA standards for the electronics industry.	History and Social Sciences: GOVT.16	8I. Use tools, materials, and machines to safely diagnose, adjust, and repair systems.	Technology Bowl
Describe techniques and methods for use of and care for soldering equipment.		8P. Apply appropriate methods to diagnose, adjust, and repair systems to ensure precise, safe and proper functionality.	
Introducing the Structure of Electricity			
Identify various energy sources.	<p>History and Social Sciences: WHII.8,14 VUS.8,14</p> <p>Science: ES.6</p>	<p>4P. Evaluate ways that technology can impact individuals, society, and the environment.</p> <p>6H. Evaluate how technology has been a powerful force in reshaping</p>	<p>Technology Bowl</p> <p>Geospatial Technology</p> <p>Senior Solar Sprint</p>

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		the social, cultural, political, and economic landscapes throughout history.	Principles of Technology (Virginia TSA only)
Describe atomic structure as it relates to electricity.	English: 9.5, 10.5, 11.5, 12.5 Science: CH.3	6F. Relate how technological development has been evolutionary, often the result of a series of refinements to basic inventions or technological knowledge.	Biotechnology Design
Describe the law of charges.	English: 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5 Mathematics: AII.3 Science: PH.7, PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Biotechnology Design Principles of Technology (Virginia TSA only)
Describe the effects of magnetism.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1 GOVT.1 Science: PH.7	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Biotechnology Design Technology Bowl
Describe the differences between conductors and insulators.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Biotechnology Design Amimatronics

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
	Science: PH.8		
Identify number systems used in electronics designs.	English: 9.5, 10.5, 11.5, 12.5 Mathematics: COM.15	1K. Compare and contrast the 1O. Assess how similarities and differences among scientific, mathematics, engineering, and technological knowledge and skills contributed to the design of a product or system. 1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Technology Bowl Principles of Technology (Virginia TSA only) Senior Solar Sprint
Describe current, including its unit of measurement and symbol.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 Mathematics: T.3 Science: PH.7, PH.8	1O. Assess how similarities and differences among scientific, mathematics, engineering, and technological knowledge and skills contributed to the design of a product or system. 1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Technology Bowl Principles of Technology (Virginia TSA only)
Describe voltage, including its unit of measurement and symbol(s).	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 Science: PH.8	1O. Assess how similarities and differences among scientific, mathematics, engineering, and technological knowledge and skills	Principles of Technology (Virginia TSA only) Senior Solar Sprint

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>contributed to the design of a product or system.</p> <p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p>	
Compare potential and electromotive forces.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1</p> <p>Mathematics: AII.3</p> <p>Science: PH.4, PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Principles of Technology (Virginia TSA only)</p> <p>Technology Bowl</p>
Describe resistance, including its unit of measurement and symbol(s).	<p>English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5</p> <p>Science: PH.8</p>	<p>1F. Describe the unique relationship between science and technology, and how the natural world can contribute to the human-made world to foster innovation.</p> <p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p>	<p>Technology Bowl</p> <p>Principles of Technology (Virginia TSA only)</p>

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Describe the interrelationship among current, voltage, and resistance.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1 GOVT.1</p> <p>Mathematics: AII.3</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Biotechnology Design</p> <p>Technology Bowl</p> <p>Principles of Technology (Virginia TSA only)</p>
Define Ohm's law.	<p>English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5</p> <p>Mathematics: AII.3</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p>	<p>Technology Bowl</p> <p>Principles of Technology (Virginia TSA only)</p>

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	
Compute current, voltage, resistance, and power, using Ohm's law and Watt's law.	English: 9.5, 10.5, 11.5, 12.5 Mathematics: A.1, A.4, AII.3 Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Biotechnology Design Principles of Technology (Virginia TSA only)
Describe a circuit as a system.	Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Engineering Design Biotechnology Design Principles of Technology (Virginia TSA only) Animatronics

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
Describe direct current in circuits.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Technology Bowl Principles of Technology (Virginia TSA only)
Demonstrate the direction of current flow in DC circuits.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Principles of Technology (Virginia TSA only)
Introducing Circuit Components			
Describe batteries as voltage sources.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to	Technology Bowl Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Describe the role of conductors in a circuit.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)
Describe the role of insulators in a circuit.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p>	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Identify control devices of electrical and electronic devices.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Animatronics</p> <p>Technology Bowl</p> <p>Principles of Technology (Virginia TSA only)</p>
Identify schematic symbols for circuit components.	English: 9.5, 10.5, 11.5, 12.5	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p>	<p>Technology Bowl</p> <p>Engineering Design</p> <p>Principles of Technology (Virginia TSA only)</p>

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	
Explain how common electronic and other electrical devices work.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1 GOVT.1</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Technology Bowl
Describe resistors by type and value.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
Describe the purpose and components of protected circuits.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Principles of Technology (Virginia TSA only)
Describe the operation of variable resistors.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Principles of Technology (Virginia TSA only)
Introducing Semi-Conductor Devices			
Identify different types of transistors and terminals of transistors.	English: 9.5, 10.5, 11.5, 12.5 History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Technology Bowl

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Describe the operation of basic semiconductor devices.	English: 9.5, 10.5, 11.5, 12.5	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)
Identify the main function of a diode.	English: 9.5, 10.5, 11.5, 12.5	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Technology Bowl

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
Identify diode materials and components.	English: 9.5, 10.5, 11.5, 12.5	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Technology Bowl
Describe the types of diodes and their applications.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Animatronics</p> <p>Technology Bowl</p> <p>Principles of Technology (Virginia TSA only)</p>
Compare the functions and characteristics of diodes.	English: 9.5, 10.5, 11.5, 12.5	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Forward-bias a diode.		<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)
Reverse-bias a diode.		<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
Exploring Circuits as Systems			
Construct simple electronic circuits from a schematic.	Science: PH.1, PH.8	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Animatronics</p> <p>VEX Robotics</p>
Describe series circuits, using modeling components.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)
Describe the flow of current in series.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p>	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Construct parallel circuits, using modeling components.	Science: PH.1, PH.8	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Animatronics</p> <p>VEX Robotics</p>
Describe the flow of current in parallel circuits.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>Science: PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
Describe the flow of current in series-parallel circuits.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Principles of Technology (Virginia TSA only)
Construct series-parallel circuits, using modeling components.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.1, PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Animatronics VEX Robotics
Designing DC Analog Circuits			
Design series circuits.	Science: PH.1, PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.	Animatronics Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Construct series circuits.	Science: PH.1, PH.8	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Animatronics</p> <p>Principles of Technology (Virginia TSA only)</p> <p>Senior Solar Sprint</p>
Design parallel circuits.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>Science: PH.1, PH.8</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p>	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	
Construct parallel circuits.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.1, PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Animatronics Senior Solar Sprint
Design series-parallel circuits.	English: 9.5, 10.5, 11.5, 12.5 Science: PH.1, PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system. 3J. Connect technological progress to the advancement of other areas of knowledge. 4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	Animatronics Principles of Technology (Virginia TSA only)
Construct series-parallel circuits.	Science: PH.1, PH.8	1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to	Animatronics Senior Solar Sprint

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)
Construct circuits that satisfy design briefs, using solderless circuit boards/breadboards.	English: 9.5, 10.5, 11.5, 12.5	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	<p>Animatronics</p> <p>Senior Solar Sprint</p> <p>Principles of Technology (Virginia TSA only)</p>
Design a circuit to be soldered on a circuit board.	English: 9.5, 10.5, 11.5, 12.5	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p>	Principles of Technology (Virginia TSA only)

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		<p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	
Describe the process and application of troubleshooting procedures.	<p>English: 9.5, 10.5, 11.5, 12.5</p> <p>History and Social Sciences: WG.1 WHI.1 WHII.1 VUS.1 GOVT.1</p> <p>Science: PH.1</p>	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Essays on Technology
Examining Current, Voltage, Resistance, and Power			
Compute electrical power in circuits.	Science: PH.1, PH.8	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p>	Animatronics

Task	SOL Correlations	ITEEA Correlations	TSA Correlations
		4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.	
Measure current in series and parallel circuits, using a multimeter.		<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Animatronics
Compare computed values of circuits to the measured value of circuits.	English: 9.5, 10.5, 11.5, 12.5	<p>1R. Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.</p> <p>3J. Connect technological progress to the advancement of other areas of knowledge.</p> <p>4R. Assess a technology that minimizes resource use and resulting waste to achieve a goal.</p>	Principles of Technology (Virginia TSA only)