# Standards Correlations
# Technology Foundations (8402 / 8403)

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| **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<br>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1<br>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* | | |

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| | 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<br>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<br>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*<br>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, | | |

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| | 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8<br>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<br>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<br>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<br>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 | | |

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| | 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<br>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<br>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<br>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 | | |

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|---|---|---|---|
| | 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<br>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<br>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<br>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 | | |

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|---|---|---|---|
| | 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<br>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<br>History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1<br>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, | | |

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| | 11.6, 11.8, 12.2, 12.5, 12.6, 12.8<br>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1<br>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*<br>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<br>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1<br>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 | | |

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|---|---|---|---|
| | History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1<br>Mathematics: 7.8, COM.1, COM.2, COM.7, COM.9, COM.10, COM.11, COM.16, COM.18, PS.17<br>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<br>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<br>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<br>History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 | | |

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|---|---|---|---|
| | 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<br>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<br>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<br>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1<br>Science: 6.1, PH.1, PS.1 | | |

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| Demonstrate workplace safety. | English: 6.4, 7.4, 8.4, 9.5, 10.5, 11.5, 12.5<br>History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1<br>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 | | |

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| 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** | | | |

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| 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. | | | |
| **Exploring Technology Foundations** | | | |
| Define technology. | English: 9.4, 10.4, 11.3<br><br>History and Social Science: VUS.1, VUS.2, VUS.3, VUS.4, VUS.5, VUS.6, VUS.7, VUS.8, VUS.9, VUS.10, VUS.11, VUS.12, VUS.13, VUS.14, WG.1, WG.4, WG.16, WG.17, WHI.1, WHI.2, WHI.3, WHI.4, WHI.5, WHI.6, WHI.9, WHI.10, WHI.11, WHI.12, WHI.13, WHI.14, WHI.15, WHII.1, WHII.2, WHII.3, WHII.4, WHII.5, WHII.6, WHII.7, WHII.8, WHII.9, WHII.10, WHII.11, WHII.12, WHII.13, WHII.14 | 1. The Characteristics and Scope of Technology | |

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| Explain the characteristics and scope of technology. | English: 9.4, 10.4, 11.3, 11.5<br><br>History and Social Science: VUS.8, WHII.8 | 1. The Characteristics and Scope of Technology<br><br>14. Medical Technologies<br><br>15. Agricultural and Related Biotechnologies<br><br>16. Energy and Power Technologies<br><br>17. Information and Communication Technologies<br><br>18. Transportation Technologies<br><br>19. Manufacturing Technologies<br><br>20. Construction Technologies | Biotechnology Design<br><br>Transportation Modeling |
| Identify the core concepts of technology. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WG.4, WG.16, WHII.8 | | |
| Describe the basic systems model. | English: 9.4, 10.4, 11.5 | 2. The Core Concepts of Technology | |

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| Distinguish between an open- and closed-loop system. | English: 9.4, 10.4, 11.3, 11.5 | 2. The Core Concepts of Technology | |
| Explain how systems may have varying outputs. | English: 9.4, 10.4, 11.5<br><br>Mathematics: COM.10 | 2. The Core Concepts of Technology | |
| List technological resources and their function in a system. | English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7<br><br>History and Social Science: VUS.8, WG.4, WHI.2, WHII.8<br><br>Mathematics: COM.2, COM.10, COM.11 | 2. The Core Concepts of Technology | |
| Explain what process does in a system. | English: 9.4, 10.4, 11.5 | 2. The Core Concepts of Technology | |
| Identify the seven resources for a particular technological system. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WG.4, WHII.8 | 2. The Core Concepts of Technology | |
| Describe an engineering design process that is used to design a product. | English: 9.4, 10.4, 11.3, 11.5<br><br>History and Social Science: VUS.8, WHII.8<br><br>Mathematics: COM.1, COM.2, COM.10, COM.11, COM.17, COM.18<br><br>Science: BIO.1, PH.1 | 9. Engineering Design | Engineering Design |

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| Identify common technological processes that convert materials or energy to produce an output or solution. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.2, VUS.3, VUS.4, VUS.6, VUS.7, VUS.8, VUS.9, VUS.10, VUS.11, VUS.12, VUS.13, VUS.14, WG.4, WHI.2, WHI.3, WHI.4, WHI.5, WHI.6, WHI.10, WHI.11, WHI.12, WHI.13, WHI.14, WHII.4, WHII.5, WHII.6, WHII.7, WHII.8, WHII.10, WHII.11, WHII.12 | 2. The Core Concepts of Technology<br><br>12. Use and Maintain Technological Products and Systems | |
| Describe the core areas of STEM. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.4, WHII.8<br><br>Science: PH.3 | 3. The Relationships Among Technologies and the Connections Between Technology and Other Fields | Engineering Design |
| Use the Pythagorean theorem during a problem-solving activity | History and Social Science: WHI.5<br><br>Mathematics: G.8 | 3. The Relationships Among Technologies and the Connections Between Technology and Other Fields | |
| Identify career opportunities in a variety of technological contexts. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: GOVT.8, GOVT.15 | 4. The Cultural, Social, Economic, and Political Effects of Technology | Technology Bowl |
| **Understanding Technological Systems** | | | |
| Illustrate the concept of a technological system. | | 2. The Core Concepts of Technology | |

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| Distinguish between a system and a subsystem. | English: 9.4, 10.4, 11.5<br><br>Mathematics: COM.5 | 2. The Core Concepts of Technology | |
| Analyze the effects of technological systems on society and the environment. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: GOVT.1, WG.1, WHI.1, WHII.1 | 4. The Cultural, Social, Economic, and Political Effects of Technology | |
| **Analyzing Consumer Products** | | | |
| Define consumer. | English: 9.4, 10.4, 11.3<br><br>History and Social Science: GOVT.14, GOVT.15 | 4. The Cultural, Social, Economic, and Political Effects of Technology | |
| Explain how human factors engineering applies to product design. | English: 9.4, 10.4, 11.5 | 8. The Attributes of Design<br><br>9. Engineering Design | Engineering Design |
| Describe ways consumer products have shaped society and the environment. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: WG.4, WG.14, WG.16 | 5. The Effects of Technology on the Environment<br><br>7. The Influence of Technology on History | Essays on Technology |
| Select a consumer product to analyze. | English: 9.4, 10.4, 11.5 | | |
| Collect product data. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: GOVT.14, GOVT.15 | 3. The Relationships Among Technologies and the Connections Between Technology and Other Fields | |

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| | Mathematics: AFDA.8, PS.1*, PS.2*, PS.3*, PS.4*, PS.8*, PS.9*, PS.10* | | |
| Reverse engineer a product. | English: 9.4, 9.6, 9.7, 10.4, 10.6, 10.7, 11.5, 11.6, 11.7 | 10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving<br><br>12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | Engineering Design |
| Analyze how a product works, using mathematical and scientific concepts. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.6, WHII.8<br><br>Mathematics: G.13, G.14<br><br>Science: PH.4 | 3. The Relationships Among Technologies and the Connections Between Technology and Other Fields<br><br>12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | |
| Describe an innovation that would improve a product. | English: 9.4, 10.4, 11.5 | 13. Assess the Impact of Products and Systems | |

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| Draw illustrations of an improved product. | English: 9.4, 10.4, 11.5<br><br>Mathematics: G.3, G.8, G.9, G.11, G.13, G.14 | 8. The Attributes of Design | |
| Construct models of an improved product. | | 8. The Attributes of Design<br><br>9. Engineering Design<br><br>12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | Biotechnology Design |
| Represent 3D objects on a two-dimensional surface. | English: 9.4, 10.4, 11.5<br><br>Mathematics: G.3, G.13, G.14 | 2. The Core Concepts of Technology | Computer-Aided Design (CAD), Engineering |
| Create a display or multimedia presentation of an improved product, emphasizing STEM concepts. | English: 9.2, 9.4, 9.6, 9.7, 10.4, 10.6, 10.7, 11.1, 11.5, 11.6, 11.7<br><br>Mathematics: G.3, G.13, G.14, AFDA.8, COM.7, COM.9, COM.15, PS.1*, PS.2*, PS.3*, PS.4*, PS.7*, PS.8*, PS.9*, PS.10*, PS.11* | 3. The Relationships Among Technologies and the Connections Between Technology and Other Fields | |
| Present recorded information about a product using multimedia. | English: 9.4, 9.6, 9.7, 10.4, 10.6, 10.7, 11.5, 11.6, 11.7 | 3. The Relationships Among Technologies and the Connections Between Technology and Other Fields | Essays on Technology<br><br>Prepared Presentation |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
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| | Mathematics: A.7, A.8, A.9, AFDA.2, AFDA.3, AFDA.8, AII.6, AII.7, AII.9, COM.10, COM.11, PS.1*, PS.2*, PS.3*, PS.4*, PS.7* | | |
| **Using Materials as a Technological Resource** | | | |
| Classify materials as either natural or synthetic. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.8 | 2. The Core Concepts of Technology | |
| Classify materials according to the major types. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.8 | 2. The Core Concepts of Technology | |
| Explain how material resources are processed. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.8 | 2. The Core Concepts of Technology | |
| Create a detailed diagram for producing a designed product/model/prototype. | English: 9.4, 10.4, 11.5 | 8. The Attributes of Design<br><br>9. Engineering Design<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving | Engineering Design |
| Use tools, machines, and processes to change materials | History and Social Science: VUS.8, WHII.8 | 10. The Role of Troubleshooting, Research | |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| to produce a designed product. | | and Development, Invention and Innovation, and Experimentation in Problem Solving<br><br>11. Apply the Design Process<br><br>12. Use and Maintain Technological Products and Systems | |
| Select the best material for a specific design application. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.8 | 2. The Core Concepts of Technology<br><br>9. Engineering Design<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving | |
| Predict the outcomes of some technological processes. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.8 | 10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving | |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| | Mathematics: A.4, A.5, A.7, AFDA.1, AFDA.2, AFDA.3, AFDA.4, AII.6, AII.7, AII.9 | | |
| Develop a design using recycled materials. | English: 9.4, 10.4, 11.3, 11.5<br><br>History and Social Science: WG.4<br><br>Mathematics: AFDA.8, PS.1*, PS.2*, PS.3*, PS.4*, PS.7*, PS.8*, PS.9*, PS.10* | 8. The Attributes of Design<br><br>9. Engineering Design<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving | |
| **Using Energy as a Technological Resource** | | | |
| Identify the two types of energy. | English: 9.4, 10.4, 11.5<br><br>Science: PH.6 | 2. The Core Concepts of Technology | |
| Analyze forms of energy. | English: 9.4, 10.4, 11.3, 11.5<br><br>History and Social Science: VUS.8, VUS.11, WHII.8, WHII.11<br><br>Science: PH.6 | 2. The Core Concepts of Technology<br><br>3. The Relationships Among Technologies and the Connections Between Technology and Other Fields<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and | Principles of Technology (Virginia only) |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| | | Experimentation in Problem Solving | |
| Identify the sources of energy used with technological devices. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.14, WG.4, WG.17, WHII.14<br><br>Science: ES.6 | 3. The Relationships Among Technologies and the Connections Between Technology and Other Fields<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving | |
| Model the use of energy with mechanical, electrical, fluidic, and thermal systems. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.8, WHII.8<br><br>Science: PH.10, PH.11, PH.12 | 11. Apply the Design Process<br><br>12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | |
| Map the path of current and emerging energy supplies from their source to end-users. | English: 9.4, 9.8, 10.4, 10.8, 11.5, 11.8<br><br>History and Social Science: VUS.14, WG.16, WG.17, WHII.14 | 4. The Cultural, Social, Economic, and Political Effects of Technology | |
| Compare methods to conserve energy through technological modification. | English: 9.4, 10.4, 11.5 | 10. The Role of Troubleshooting, Research and Development, Invention | |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| | History and Social Science: VUS.14, WG.17, WHII.14 | and Innovation, and Experimentation in Problem Solving | |
| **Controlling an Electronic System** | | | |
| Analyze a problem whose solution uses electronic controls. | English: 9.4, 10.4, 11.5 | 9. Engineering Design<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving<br><br>11. Apply the Design Process | |
| Describe the different methods for using electronically controlled devices. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.14, WG.17, WHII.14 | 10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving<br><br>11. Apply the Design Process<br><br>12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| Use engineering design to solve an identified problem using an electronically controlled device . | English: 9.4, 10.4, 11.5<br><br>Mathematics: A.4, A.5, A.6, A.7, G.13, G.14, AFDA.1, AFDA.2, AFDA.3, AFDA.4, AII.2, AII.7, AII.9 | 9. Engineering Design<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving<br><br>11. Apply the Design Process<br><br>12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | Engineering Design |
| Construct a functional model of an electronically controlled device. | | 12. Use and Maintain Technological Products and Systems | Engineering Design |
| Control a device with a microcontroller. | English: 9.4, 9.6, 9.7, 10.4, 10.6, 10.7, 11.5, 11.6, 11.7<br><br>Mathematics: COM.1, COM.2, COM.5, COM.8, COM.10, COM.11, COM.17, COM.18 | 12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | Software Development |
| Present information about an electronically controlled device. | English: 9.2, 9.4, 9.6, 9.7, 10.2, 10.4, 10.6, 10.7, 11.1, 11.5, 11.6, 11.7 | 9. Engineering Design | |
| **Designing a Product** | | | |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| Evaluate the needs and wants of people in school, home, community, or world that could be met through technological change. | English: 9.4, 10.4, 11.5<br><br>History and Social Science: VUS.14, WG.17, WHII.14 | 4. The Cultural, Social, Economic, and Political Effects of Technology<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving | Biotechnology Design |
| Write a statement that defines a problem, challenge, need, or opportunity. | English: 9.6, 9.7, 10.6, 10.7, 11.6, 11.7<br><br>Mathematics: COM.3 | 9. Engineering Design | |
| Collect information about a technological problem to be solved. | English: 9.4, 10.4, 11.5 | 9. Engineering Design<br><br>10. The Role of Troubleshooting, Research and Development, Invention and Innovation, and Experimentation in Problem Solving | Technology Problem Solving |
| Generate potential solutions to the problem, challenge, need, or opportunity. | English: 9.4, 9.8, 10.4, 10.8, 11.5, 11.8 | 8. The Attributes of Design<br><br>9. Engineering Design<br><br>10. The Role of Troubleshooting, Research | Biotechnology Design<br><br>Engineering Design |

| Task | SOL Correlation | ITEEA National Standards | TSA Competitive Events |
|---|---|---|---|
| | | and Development, Invention and Innovation, and Experimentation in Problem Solving | |
| Select the best solution for a problem. | English: 9.4, 10.4, 11.5 | 9. Engineering Design | |
| Construct a prototype of the best solution. | English: 9.2, 9.4, 9.6, 9.7, 10.2, 10.4, 10.6, 10.7, 11.2, 11.5, 11.6, 11.7 | 11. Apply the Design Process<br><br>12. Use and Maintain Technological Products and Systems<br><br>13. Assess the Impact of Products and Systems | |
| Evaluate the solution by comparing it with the problem statement, constraints, and criteria. | English: 9.4, 10.4, 11.5<br><br>Mathematics: PS.1*, PS.2*, PS.20, PS.3*, PS.4* | 9. Engineering Design<br><br>13. Assess the Impact of Products and Systems | |
| Present the final product. | English: 9.4, 10.4, 11.5<br><br>Mathematics: PS.1*, PS.2*, PS.20, PS.3*, PS.4* | 9. Engineering Design<br><br>13. Assess the Impact of Products and Systems | Engineering Design<br><br>Prepared Presentation |