

Technology Foundations (8403)

Demonstrating Personal Qualities and Abilities

1. Demonstrate creativity and innovation. 8403.1
2. Demonstrate critical thinking and problem solving. 8403.2
3. Demonstrate initiative and self-direction. 8403.3
4. Demonstrate integrity. 8403.4
5. Demonstrate work ethic. 8403.5

Demonstrating Interpersonal Skills

6. Demonstrate conflict-resolution skills. 8403.6
7. Demonstrate listening and speaking skills. 8403.7
8. Demonstrate respect for diversity. 8403.8
9. Demonstrate customer service skills. 8403.9
10. Collaborate with team members. 8403.10

Demonstrating Professional Competencies

11. Demonstrate big-picture thinking. 8403.11
12. Demonstrate career- and life-management skills. 8403.12
13. Demonstrate continuous learning and adaptability. 8403.13
14. Manage time and resources. 8403.14
15. Demonstrate information-literacy skills. 8403.15
16. Demonstrate an understanding of information security. 8403.16
17. Maintain working knowledge of current information-technology (IT) systems. 8403.17
18. Demonstrate proficiency with technologies, tools, and machines common to a specific occupation. 8403.18
19. Apply mathematical skills to job-specific tasks. 8403.19

	20. Demonstrate professionalism. 8403.20
	21. Demonstrate reading and writing skills. 8403.21
	22. Demonstrate workplace safety. 8403.22
Examining All Aspects of an Industry	23. Examine aspects of planning within an industry/organization. 8403.23
	24. Examine aspects of management within an industry/organization. 8403.24
	25. Examine aspects of financial responsibility within an industry/organization. 8403.25
	26. Examine technical and production skills required of workers within an industry/organization. 8403.26
	27. Examine principles of technology that underlie an industry/organization. 8403.27
	28. Examine labor issues related to an industry/organization. 8403.28
	29. Examine community issues related to an industry/organization. 8403.29
	30. Examine health, safety, and environmental issues related to an industry/organization. 8403.30
Addressing Elements of Student Life	31. Identify the purposes and goals of the student organization. 8403.31
	32. Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult. 8403.32
	33. Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects. 8403.33
	34. Identify Internet safety issues and procedures for complying with acceptable use standards. 8403.34
Exploring Work-Based Learning	35. Identify the types of work-based learning (WBL) opportunities. 8403.35
	36. Reflect on lessons learned during the WBL experience. 8403.36
	37. Explore career opportunities related to the WBL experience. 8403.37
	38. Participate in a WBL experience, when appropriate. 8403.38
Exploring Technology Foundations	39. Define technology. 8403.39

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- 40. Explain the characteristics and scope of technology.** 8403.40
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- 41. Identify the core concepts of technology.** 8403.41
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- 42. Describe the basic systems model.** 8403.42
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- 43. Distinguish between an open- and closed-loop system.** 8403.43
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- 44. Explain how systems may have varying outputs.** 8403.44
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- 45. List technological resources and their function in a system.** 8403.45
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- 46. Explain what process does in a system.** 8403.46
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- 47. Identify the seven resources for a particular technological system.** 8403.47
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- 48. Describe an engineering design process that is used to design a product.** 8403.48
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- 49. Identify common technological processes that convert materials or energy to produce an output or solution.** 8403.49
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- 50. Describe the core areas of STEM.** 8403.50
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- 51. Use the Pythagorean theorem during a problem-solving activity** 8403.51
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- 52. Identify career opportunities in a variety of technological contexts.** 8403.52
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Understanding Technological Systems

- 53. Illustrate the concept of a technological system.** 8403.53
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- 54. Distinguish between a system and a subsystem.** 8403.54
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- 55. Analyze the effects of technological systems on society and the environment.** 8403.55
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Analyzing Consumer Products

- 56. Define consumer.** 8403.56
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- 57. Explain how human factors engineering applies to product design.** 8403.57
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- 58. Describe ways consumer products have shaped society and the environment.** 8403.58
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- 59. Select a consumer product to analyze.** 8403.59
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- 60. Collect product data.** 8403.60
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- 61. Reverse engineer a product.** 8403.61
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- 62. Analyze how a product works, using mathematical and scientific concepts.** 8403.62
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	63. Describe an innovation that would improve a product. 8403.63
	64. Draw illustrations of an improved product. 8403.64
	65. Construct models of an improved product. 8403.65
	66. Represent 3D objects on a two-dimensional surface. 8403.66
	67. Create a display or multimedia presentation of an improved product, emphasizing STEM concepts. 8403.67
	68. Present recorded information about a product using multimedia. 8403.68
Using Materials as a Technological Resource	69. Classify materials as either natural or synthetic. 8403.69
	70. Classify materials according to the major types. 8403.70
	71. Explain how material resources are processed. 8403.71
	72. Create a detailed diagram for producing a designed product/model/prototype. 8403.72
	73. Use tools, machines, and processes to change materials to produce a designed product. 8403.73
	74. Select the best material for a specific design application. 8403.74
	75. Predict the outcomes of some technological processes. 8403.75
	76. Develop a design using recycled materials. 8403.76
Using Energy as a Technological Resource	77. Identify the two types of energy. 8403.77
	78. Analyze forms of energy. 8403.78
	79. Identify the sources of energy used with technological devices. 8403.79
	80. Model the use of energy with mechanical, electrical, fluidic, and thermal systems. 8403.80
	81. Map the path of current and emerging energy supplies from their source to end-users. 8403.81
	82. Compare methods to conserve energy through technological modification. 8403.82
Controlling an Electronic System	83. Analyze a problem whose solution uses electronic controls. 8403.83

84. Describe the different methods for using electronically controlled devices. 8403.84

85. Use engineering design to solve an identified problem using an electronically controlled device . 8403.85

86. Construct a functional model of an electronically controlled device. 8403.86

87. Control a device with a microcontroller. 8403.87

88. Present information about an electronically controlled device. 8403.88

Designing a Product

89. Evaluate the needs and wants of people in school, home, community, or world that could be met through technological change. 8403.89

90. Write a statement that defines a problem, challenge, need, or opportunity. 8403.90

91. Collect information about a technological problem to be solved. 8403.91

92. Generate potential solutions to the problem, challenge, need, or opportunity. 8403.92

93. Select the best solution for a problem. 8403.93

94. Construct a prototype of the best solution. 8403.94

95. Evaluate the solution by comparing it with the problem statement, constraints, and criteria. 8403.95

96. Present the final product. 8403.96