

Inventions and Innovations (2022)

Demonstrating Personal Qualities and Abilities

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

Demonstrating Interpersonal Skills

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

Demonstrating Professional Competencies

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

	20 Demonstrate professionalism. 20
	21 Demonstrate reading and writing skills. 21
	22 Demonstrate workplace safety. 22
Addressing Elements of Student Life	23 Identify the purposes and goals of the student organization. 23
	24 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult. 24
	25 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects. 25
	26 Identify Internet safety issues and procedures for complying with acceptable use standards. 26
Exploring Work-Based Learning	27 Identify the types of work-based learning (WBL) opportunities. 27
	28 Reflect on lessons learned during the WBL experience. 28
	29 Explore career opportunities related to the WBL experience. 29
	30 Participate in a WBL experience, when appropriate. 30
Exploring Inventions and Innovations	31 Explain the importance of technology in the development of society. 31
	32 Describe inventions throughout history. 32
	33 Explore how inventions and innovations relate to the development of new products, processes, and systems. 33
	34 Identify the purpose of protecting intellectual property. 34
	35 Examine how technology and engineering careers contribute to new inventions and innovations. 35
Exploring Tools for Invention and Innovation	36 Demonstrate safe use of a minimum of five tools and/or equipment. 36
	37 Demonstrate various types of measuring. 37
	38 Create sketches and drawings. 38
	39 Model various mechanisms used in inventions and innovations. 39
	40 Model electronic circuits used in inventions and innovations. 40
	41 Program (code) a device to control an invention or innovation. 41

Exploring Design and Creativity

42 Evaluate a product's design with the goal of innovation. 42

43 Reverse engineer an existing product. 43

44 Describe the steps of the Virginia Department of Education (VDOE) engineering design process. 44

45 Explain the characteristics of the engineering design process. 45

46 Explain the effect of the criteria and constraints on a design. 46

Applying the Engineering Design Process

47 Plan a solution to an engineering design problem, as part of a team. 47

48 Build a model or prototype of the proposed solution, as part of a team. 48

49 Communicate the process and results of the proposed solution, as part of a team. 49

Building Teamwork

50 Plan a solution to an engineering design problem, as part of a team. 50

51 Build a model or prototype of the proposed solution, as part of a team. 51

52 Communicate the process and results of the proposed solution, as part of a team. 52

53 Evaluate the team process followed. 53
