PLTW Computer Science Standards Connection
Computer Science A

PLTW

Connections to Standards in Computer Science

PLTW curriculum is designed to empower students to thrive in an evolving world. As a part of the design process when developing and updating our curriculum, we focus on connections to a variety of standards. PLTW Computer Science A connects to standards in the following:

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Computer Science Teachers Association K-12 Computer Science

Computing Systems

3A-CS-01

Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☑	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☐	☑	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☑	☐	☐	

Networks & the Internet

3A-NI-08

Explain tradeoffs when selecting and implementing cybersecurity recommendations.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☑	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☐	☐	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

Data & Analysis

3A-DA-10

Evaluate the trade-offs in how data elements are organized and where data is stored.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☐	☑	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☑	☐	☐	

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3A-DA-12

Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

Algotrithms & Programming

3A-AP-13

Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☑	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☐	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☑	☑	☑

3A-AP-14

Use lists to simplify solutions, generalizing computational problems instead of repeated use of simple variables.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☑	☐	☐

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3A-AP-15

Justify the selection of specific control structures when trade-offs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☑	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☑

3A-AP-16

Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☑	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☑	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☑

3A-AP-17

Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☑

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☑	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☑	☑	☑

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3A-AP-18

Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☐	Unit 4.11 ☑	

3A-AP-21

Evaluate and refine computational artifacts to make them more usable and accessible.

Chapter 1	Unit 1.1 ☐	Unit 1. ☑	Unit 1.3 ☑	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

3A-AP-22

Design and develop computational artifacts working in team roles using collaborative tools.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☑	Unit 4.11 ☐	

3A-AP-23

Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.

Chapter 1	Unit 1.1 ☐	Unit 1. ☑	Unit 1.3 ☐	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

Impacts of Computing

3A-IC-24

Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

3A-IC-28

Explain the beneficial and harmful effects that intellectual property laws can have on innovation.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

3A-IC-29

Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

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3A-IC-30

Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☐	☐	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

Networks & the Internet

3B-NI-04

Compare ways software developers protect devices and information from unauthorized access.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☐	☑	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

Data & Analysis

3B-DA-05

Use data analysis tools and techniques to identify patterns in data representing complex systems.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☐	☐	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

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3B-DA-06

Select data collection tools and techniques to generate data sets that support a claim or communicate information.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

Algotrithms & Programming

3B-AP-10

Use and adapt classic algorithms to solve computational problems.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☑	Unit 3. ☐	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☑	Unit 4.11 ☐	

3B-AP-11

Evaluate algorithms in terms of their efficiency, correctness, and clarity.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☑	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

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3B-AP-12

Compare and contrast fundamental data structures and their uses.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☑	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

3B-AP-14

Construct solutions to problems using student-created components, such as procedures, modules, and/or objects.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☑

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☑	☑	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☐	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☑	☑	☐

3B-AP-15

Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

3B-AP-16

Demonstrate code reuse by creating programming solutions using libraries and APIs.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☑	☐	☑

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☑	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

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3B-AP-17

Plan and develop programs for broad audiences using a software life cycle process.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☑

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☑	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

3B-AP-20

Use version control systems, integrated development environments (IDEs), and collaborative tools and practices (code documentation) in a group software project.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

3B-AP-21

Develop and use a series of test cases to verify that a program performs according to its design specifications.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☐	☑	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

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3B-AP-22

Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g., breaking other functionality).

Chapter 1	Unit 1.1 ☐	Unit 1. ☑	Unit 1.3 ☐	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☑	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☐	Unit 4.11 ☐	

3B-AP-23

Evaluate key qualities of a program through a process such as a code review.

Chapter 1	Unit 1.1 ☑	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL 1 Nature and Characteristics of Technology and Engineering

STEL-1N

Explain how the world around them guides technological development and engineering design.

Chapter 1	Unit 1.1 ☑	Unit 1. ☑	Unit 1.3 ☐	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☑	Unit 4.11 ☑	

Standards for Technological and Engineering Literacy

STEL-1O

Assess how similarities and differences among scientific, mathematics, engineering, and technological knowledge and skills contributed to the design of a product or system.

Chapter 1	Unit 1.1 ☑	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL-1P

Analyze the rate of technological development and predict future diffusion and adoption of new technologies.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL-1Q

Conduct research to inform intentional inventions and innovations that address specific needs and wants.

Chapter 1	Unit 1.1 ☑	Unit 1. ☐	Unit 1.3 ☑	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☑	

Standards for Technological and Engineering Literacy

STEL-1R

Develop a plan that incorporates knowledge from science, mathematics, and other disciplines to design or improve a technological product or system.

Chapter 1	Unit 1.1 ☑	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☑	

STEL 2 Core Concepts of Technology and Engineering

STEL-2T

Demonstrate the use of conceptual, graphical, virtual, mathematical, and physical modeling to identify conflicting considerations before the entire system is developed and to aid in design decision making.

Chapter 1	Unit 1.1 ☐	Unit 1. ☑	Unit 1.3 ☐	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☐	Unit 4.11 ☐	

STEL-2U

Diagnose a flawed system embedded within a larger technological, social, or environmental system.

Chapter 1	Unit 1.1 ☑	Unit 1. ☑	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☐	Unit 4.11 ☐	

Standards for Technological and Engineering Literacy

STEL-2V

Analyze the stability of a technological system and how it is influenced by all of the components in the system, especially those in the feedback loop.

Chapter 1	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
	☐	☑	☐	☐

Chapter 2	Unit 2.4	Unit 2.5	Unit 2.6
	☑	☑	☑

Chapter 3	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
	☐	☐	☐	☐

Chapter 4	Unit 4.9	Unit 4.1	Unit 4.11
	☐	☐	☐

STEL-2W

Select resources that involve tradeoffs between competing values, such as availability, cost, desirability, and waste while solving problems.

Chapter 1	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
	☐	☐	☐	☐

Chapter 2	Unit 2.4	Unit 2.5	Unit 2.6
	☑	☐	☐

Chapter 3	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
	☐	☐	☐	☐

Chapter 4	Unit 4.9	Unit 4.1	Unit 4.11
	☐	☐	☐

STEL-2X

Cite examples of the criteria and constraints of a product or system and how they affect final design.

Chapter 1	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
	☑	☑	☐	☐

Chapter 2	Unit 2.4	Unit 2.5	Unit 2.6
	☑	☑	☐

Chapter 3	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
	☑	☑	☑	☐

Chapter 4	Unit 4.9	Unit 4.1	Unit 4.11
	☐	☑	☐

Standards for Technological and Engineering Literacy

STEL-2Y

Implement quality control as a planned process to ensure that a product, service, or system meets established criteria.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☑	☑	☑	☑

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☑	☑	☑	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☑	☐	☐	

STEL-2Z

Use management processes in planning, organizing, and controlling work.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☑	☑	☑	☑

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☑	☑	☑	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

STEL 3 Integration of Knowledge, Technologies, and Practices

STEL-3H

Analyze how technology transfer occurs when a user applies an existing innovation developed for one function for a different purpose.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☑	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☑	☐	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

Standards for Technological and Engineering Literacy

STEL-3I

Evaluate how technology enhances opportunities for new products and services through globalization.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☑	☑	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

STEL-3J

Connect technological progress to the advancement of other areas of knowledge and vice versa.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☑	☑	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

STEL 4 Impacts of Technology

STEL-4P

Evaluate ways that technology can impact individuals, society, and the environment.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6	
Chapter 2	☑	☑	☐	

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11	
Chapter 4	☐	☐	☐	

Standards for Technological and Engineering Literacy

STEL-4S

Develop a solution to a technological problem that has the least negative environmental and social impact.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL-4T

Evaluate how technologies alter human health and capabilities.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL 5 Influence of Society on Technological Development

STEL-5H

Evaluate a technological innovation that arose from a specific society's unique need or want.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

Standards for Technological and Engineering Literacy

STEL-5I

Evaluate a technological innovation that was met with societal resistance impacting its development.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL 6 History of Technology

STEL-6F

Relate how technological development has been evolutionary, often the result of a series of refinements to basic inventions or technological knowledge.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL-6H

Evaluate how technology has been a powerful force in reshaping the social, cultural, political, and economic landscapes throughout history.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

Standards for Technological and Engineering Literacy

STEL-6J

Investigate the widespread changes that have resulted from the Information Age, which has placed emphasis on the processing and exchange of information.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☐	Unit 2.6 ☐	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL 7 Design in Technology and Engineering Education

STEL-7W

Determine the best approach by evaluating the purpose of the design.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☑	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☑	Unit 4.11 ☑	

STEL-7X

Document trade-offs in the technology and engineering design process to produce the optimal design.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☐	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☑	Unit 4.11 ☑	

Standards for Technological and Engineering Literacy

STEL-7Y

Optimize a design by addressing desired qualities within criteria and constraints.

Chapter 1	Unit 1.1 ☐	Unit 1. ☐	Unit 1.3 ☑	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☑	Unit 4.11 ☑	

STEL-7Z

Apply principles of human-centered design.

Chapter 1	Unit 1.1 ☐	Unit 1. ☑	Unit 1.3 ☐	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☐	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☐	Unit 3. ☐	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☐	

STEL-7AA

Illustrate principles, elements and factors of design.

Chapter 1	Unit 1.1 ☑	Unit 1. ☑	Unit 1.3 ☑	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☑	Unit 4.11 ☑	

STEL-7BB

Implement the best possible solution to a design.

Chapter 1	Unit 1.1 ☑	Unit 1. ☑	Unit 1.3 ☑	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☑	Unit 4.11 ☑	

Standards for Technological and Engineering Literacy

STEL-7CC

Apply a broad range of design skills to their design process.

Chapter 1	Unit 1.1 ☑	Unit 1. ☑	Unit 1.3 ☑	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☑	Unit 4.11 ☑	

STEL-7DD

Apply a broad range of making skills to their design process.

Chapter 1	Unit 1.1 ☑	Unit 1. ☑	Unit 1.3 ☑	Unit 1.4 ☑
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☑	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☑	Unit 3. ☑	Unit 3.8 ☑	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☑	Unit 4.1 ☑	Unit 4.11 ☑	

STEL 8 Applying, Maintaining, and Assessing Technological Products and Systems

STEL-8N

Use various approaches to communicate processes and procedures for using, maintaining, and assessing technological products and systems.

Chapter 1	Unit 1.1 ☑	Unit 1. ☐	Unit 1.3 ☐	Unit 1.4 ☐
Chapter 2	Unit 2.4 ☑	Unit 2.5 ☐	Unit 2.6 ☑	
Chapter 3	Unit 3.6 ☐	Unit 3. ☑	Unit 3.8 ☐	Unit 3.9 ☐
Chapter 4	Unit 4.9 ☐	Unit 4.1 ☐	Unit 4.11 ☑	

Standards for Technological and Engineering Literacy

STEL-8O

Develop a device or system for the marketplace.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☑	☑	☑

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☑	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☑

STEL-8P

Apply appropriate methods to diagnose, adjust and repair systems to ensure precise, safe and proper functionality.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☑	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☑	☑	☑

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☑	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☑

STEL-8Q

Synthesize data and analyze trends to make decisions about technological products, systems, or processes.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☑	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☑	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

STEL-8R

Interpret the results of technology assessment to guide policy development.

	Unit 1.1	Unit 1.	Unit 1.3	Unit 1.4
Chapter 1	☐	☐	☐	☐

	Unit 2.4	Unit 2.5	Unit 2.6
Chapter 2	☑	☐	☐

	Unit 3.6	Unit 3.	Unit 3.8	Unit 3.9
Chapter 3	☐	☐	☐	☐

	Unit 4.9	Unit 4.1	Unit 4.11
Chapter 4	☐	☐	☐

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