

### Connections to Standards in PLTW Gateway

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 for Innovators and Makers connects to standards in the following:

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# Common Core College and Career Readiness Anchor Standards

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## Reading

Range of Reading and Level of Text Complexity

CCSS.ELA-LITERACY.CCRA.R.10

Read and comprehend complex literary and informational texts independently and proficiently.

- 1.1     1.2     1.3     1.4     1.5
  - 2.1     2.2     2.3     2.4
  - 3.1     3.2
- 

## Writing

Text Types and Purposes

CCSS.ELA-LITERACY.CCRA.W.2

Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

CCSS.ELA-LITERACY.CCRA.W.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

- 1.1     1.2     1.3     1.4     1.5
  - 2.1     2.2     2.3     2.4
  - 3.1     3.2
- 

## Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-LITERACY.CCRA.SL.1

Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

CCSS.ELA-LITERACY.CCRA.SL.2

Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core College and Career Readiness Anchor Standards

## CCSS.ELA-LITERACY.CCRA.SL.4

Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## CCSS.ELA-LITERACY.CCRA.SL.5

Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## CCSS.ELA-LITERACY.CCRA.SL.6

Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Language

### Vocabulary Acquisition and Use

#### CCSS.ELA-LITERACY.CCRA.L.4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.CCRA.L.5

Demonstrate understanding of word relationships and nuances in word meanings.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core College and Career Readiness Anchor Standards

CCSS.ELA-LITERACY.CCRA.L.6

Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

1.1     1.2     1.3     1.4     1.5

2.1     2.2     2.3     2.4

3.1     3.2

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# Common Core State Standards for English Language Arts 6–8 Literacy Standards for History/Social Studies, Science, and Technical Subjects

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## Reading Science/Technical

### Key Ideas and Details

#### CCSS.ELA-LITERACY.RST.6-8.2

Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Craft and Structure

#### CCSS.ELA-LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Range of Reading and Level of Text Complexity

#### CCSS.ELA-LITERACY.RST.6-8.10

By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core State Standards for English Language Arts 6–8 Literacy Standards for History/Social Studies, Science, and Technical Subjects

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## Writing in History/Social Studies, Science, and Technical Subjects

### Text Types and Purposes

CCSS.ELA-LITERACY.WHST.6-8.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

1.1    1.2    1.3    1.4    1.5

2.1    2.2    2.3    2.4

3.1    3.2

CCSS.ELA-LITERACY.WHST.6-8.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

1.1    1.2    1.3    1.4    1.5

2.1    2.2    2.3    2.4

3.1    3.2

### Production and Distribution of Writing

CCSS.ELA-LITERACY.WHST.6-8.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

1.1    1.2    1.3    1.4    1.5

2.1    2.2    2.3    2.4

3.1    3.2

### Research to Build and Present Knowledge

CCSS.ELA-LITERACY.WHST.6-8.9

Draw evidence from informational texts to support analysis, reflection, and research.

1.1    1.2    1.3    1.4    1.5

2.1    2.2    2.3    2.4

3.1    3.2

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# Common Core State Standards for English Language Arts 6th Grade

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## Reading Informational

### Key Ideas and Details

CCSS.ELA-LITERACY.RI.6.2

Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Craft and Structure

CCSS.ELA-LITERACY.RI.6.4

Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Writing

### Text Types and Purposes

CCSS.ELA-LITERACY.W.6.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

CCSS.ELA-LITERACY.W.6.3.d

Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Production and Distribution of Writing

CCSS.ELA-LITERACY.W.6.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3.)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core State Standards for English Language Arts 6th Grade

## Research to Build and Present Knowledge

### CCSS.ELA-LITERACY.W.6.9

Draw evidence from literary or informational texts to support analysis, reflection, and research.

- 1.1     1.2     1.3     1.4     1.5
  - 2.1     2.2     2.3     2.4
  - 3.1     3.2
- 

## Speaking and Listening

### Comprehension and Collaboration

#### CCSS.ELA-LITERACY.SL.6.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.SL.6.1.a

Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.SL.6.1.b

Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.SL.6.1.c

Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2



# Common Core State Standards for English Language Arts 6th Grade

## CCSS.ELA-LITERACY.SL.6.2

Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## Presentation of Knowledge and Ideas

### CCSS.ELA-LITERACY.SL.6.5

Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### CCSS.ELA-LITERACY.SL.6.6

Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Language

### Vocabulary Acquisition and Use

#### CCSS.ELA-LITERACY.L.6.4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.L.6.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core State Standards for English Language Arts 7th Grade

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## Reading Literature

### Key Ideas and Details

CCSS.ELA-LITERACY.RL.7.1

Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

- 1.1     1.2     1.3     1.4     1.5
  - 2.1     2.2     2.3     2.4
  - 3.1     3.2
- 

## Writing

### Text Types and Purposes

CCSS.ELA-LITERACY.W.7.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

CCSS.ELA-LITERACY.W.7.3.d

Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Production and Distribution of Writing

CCSS.ELA-LITERACY.W.7.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 7.w.1–3)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core State Standards for English Language Arts 7th Grade

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## Speaking and Listening

### Comprehension and Collaboration

#### CCSS.ELA-LITERACY.SL.7.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.SL.7.1.a

Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.SL.7.1.b

Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.SL.7.1.c

Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.SL.7.1.d

Acknowledge new information expressed by others and, when warranted, modify their own views.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core State Standards for English Language Arts 7th Grade

## Presentation of Knowledge and Ideas

### CCSS.ELA-LITERACY.SL.7.5

Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### CCSS.ELA-LITERACY.SL.7.6

Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

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## Language

### Knowledge of Language

#### CCSS.ELA-LITERACY.L.7.3.a

Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### Vocabulary Acquisition and Use

#### CCSS.ELA-LITERACY.L.7.4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

#### CCSS.ELA-LITERACY.L.7.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

# Common Core State Standards for English Language Arts 7th Grade

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# Common Core State Standards for English Language Arts 8th Grade

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## Writing

### Text Types and Purposes

#### CCSS.ELA-LITERACY.W.8.2.d

Use precise language and domain-specific vocabulary to inform about or explain the topic.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

#### CCSS.ELA-LITERACY.W.8.3.d

Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Production and Distribution of Writing

#### CCSS.ELA-LITERACY.W.8.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3.)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Research to Build and Present Knowledge

#### CCSS.ELA-LITERACY.W.8.9

Draw evidence from literary or informational texts to support analysis, reflection, and research.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Speaking and Listening

### Comprehension and Collaboration

#### CCSS.ELA-LITERACY.SL.8.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Common Core State Standards for English Language Arts 8th Grade

## CCSS.ELA-LITERACY.SL.8.1.a

Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## CCSS.ELA-LITERACY.SL.8.1.b

Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## CCSS.ELA-LITERACY.SL.8.1.d

Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## Presentation of Knowledge and Ideas

### CCSS.ELA-LITERACY.SL.8.5

Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Language

### Vocabulary Acquisition and Use

#### CCSS.ELA-LITERACY.L.8.6

Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# International Society for Technology in Education

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## Empowered Learner

1a

Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2
- 

## Digital Citizen

2b

Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2
- 

## Knowledge Constructor

3d

Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2
- 

## Innovative Designer

4a

Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

4b

Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2



# International Society for Technology in Education

4c

Students develop, test and refine prototypes as part of a cyclical design process.

- 1.1    1.2    1.3    1.4    1.5
  - 2.1    2.2    2.3    2.4
  - 3.1    3.2
- 

## Computational Thinker

5c

Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

- 1.1    1.2    1.3    1.4    1.5
  - 2.1    2.2    2.3    2.4
  - 3.1    3.2
- 

## Creative Communicator

6b

Students create original works or responsibly repurpose or remix digital resources into new creations.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

6c

Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.

- 1.1    1.2    1.3    1.4    1.5
  - 2.1    2.2    2.3    2.4
  - 3.1    3.2
- 

## Global Collaborator

7b

Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

# International Society for Technology in Education

7c

Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Standards for Technological and Engineering Literacy

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## Nature and Characteristics of Technology and Engineering

### STEL-1J

Develop innovative products and systems that solve problems and extend capabilities based on individual or collective needs and wants.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Core Concepts of Technology and Engineering

### STEL-2M

Differentiate between inputs, processes, outputs, and feedback in technological systems.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### STEL-2S

Defend decisions related to a design problem.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Design in Technology and Engineering Education

### STEL-7Q

Apply the technology and engineering design process.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### STEL-7R

Refine design solutions to address criteria and constraints.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Standards for Technological and Engineering Literacy

## STEL-7S

Create solutions to problems by identifying and applying human factors in design.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## STEL-7U

Evaluate the strengths and weaknesses of different design solutions.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

## STEL-7V

Improve essential skills necessary to successfully design.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# K12 Computer Science Framework

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## Fostering an Inclusive Computing Culture

### P1.FICC.1

Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### P1.FICC.2

Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### P1.FICC.3

Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

---

## Collaborating Around Computing

### P2.CAC.1

Cultivate working relationships with individuals possessing diverse perspectives, skills, and personalities.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### P2.CAC.2

Create team norms, expectations, and equitable workloads to increase efficiency and effectiveness.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# K12 Computer Science Framework

## P2.CAC.3

Solicit and incorporate feedback from, and provide constructive feedback to, team members and other stakeholders.

- 1.1     1.2     1.3     1.4     1.5
  - 2.1     2.2     2.3     2.4
  - 3.1     3.2
- 

## Recognizing and Defining Computational Problems

### P3.RDCP.2

Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures

- 1.1     1.2     1.3     1.4     1.5
  - 2.1     2.2     2.3     2.4
  - 3.1     3.2
- 

## Creating Computational Artifacts

### P5.CCA.1

Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### P5.CCA.2

Create a computational artifact for practical intent, personal expression, or to address a societal issue.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### P5.CCA.3

Modify an existing artifact to improve or customize it.

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# K12 Computer Science Framework

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## Testing and Refining Computational Artifacts

### P6.TRCA.1

Systematically test computational artifacts by considering all scenarios and using test cases.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### P6.TRCA.2

Identify and fix errors using a systematic process.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### P6.TRCA.3

Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

---

## Communicating About Computing

### P7.CAC.2

Describe, justify, and document computational processes and solutions using appropriate terminology consistent with the intended audience and purpose.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

# The Computer Science Teachers Association Standards

In Spring 2023 PLTW submitted all necessary documentation required by the Computer Science Teachers Association (CSTA) for a crosswalk review of our Launch and Gateway curricula by the CSTA Standards Review Team. While we anticipate approval and validation by CSTA, the review is pending.

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## Computing Systems

### Devices

#### 2-CS-01

Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices. [C] CS: Devices [P] Computational Problems (3.3)

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### Hardware & Software

#### 2-CS-02

Design projects that combine hardware and software components to collect and exchange data. [C] CS: Hardware & Software [P] Creating (5.1)

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### Troubleshooting

#### 2-CS-03

Systematically identify and fix problems with computing devices and their components. [C] CS: Troubleshooting [P] Testing (6.2)

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

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## Networks & the Internet

### Network Communication & Organization

#### 2-NI-04

Model the role of protocols in transmitting data across networks and the Internet. [C] NI: Network Communication & Organization [P] Abstraction (4.4)

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2



# The Computer Science Teachers Association Standards

## Cybersecurity

### 2-NI-06

Explain how physical and digital security measures protect electronic information. [C] NI: Cybersecurity [P]  
Communicating (7.2)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Algorithms & Programming

### Algorithms

#### 2-AP-10

Use flowcharts and/or pseudocode to address complex problems as algorithms. [C] AP: Algorithms [P]  
Abstraction (4.4, 4.1)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Variables

#### 2-AP-11

Create clearly named variables that represent different data types and perform operations on their values. [C]  
AP: Variables [P] Creating (5.1, 5.2)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### Modularity

#### 2-AP-13

Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. [C] AP: Modularity [P] Computational Problems (3.2)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# The Computer Science Teachers Association Standards

## Program Development

### 2-AP-15

Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts. [C] AP: Program Development [P] Collaborating (2.2)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### 2-AP-16

Seek and incorporate feedback from team members and users to refine a solution that meets user needs. [C] AP: Program Development [P] Collaborating (2.3), Inclusion (1.1)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### 2-AP-18

Systematically test and refine programs using a range of test cases. [C] AP: Program Development [P] Testing (6.1)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

### 2-AP-19

Document programs in order to make them easier to follow, test, and debug. [C] AP: Program Development [P] Communicating (7.2)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

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## Impacts of Computing

### Culture

#### 2-IC-20

Discuss issues of bias and accessibility in the design of existing technologies. [C] IC: Culture [P] Inclusion (1.2)

- 1.1     1.2     1.3     1.4     1.5
- 2.1     2.2     2.3     2.4
- 3.1     3.2

# Next Generation Science Standards

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## Engineering Design

### NGSS.MS-ETS1-2

Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2
- 

## Science and Engineering Practices

### Asking Questions and Defining Problems

#### NGSS.P1

Asking questions and defining problems in 6-8 builds on K-5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### Using Mathematics and Computational Thinking

#### NGSS.P5

Create algorithms (a series of ordered steps) to solve a problem.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

### Constructing Explanations and Designing Solutions

#### NGSS.P6

Constructing explanations and designing solutions in 6-8 builds on K-5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

#### NGSS.P6

• Optimize performance of a design by prioritizing criteria, making tradeoffs, testing, revising, and retesting.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

# Next Generation Science Standards

## NGSS.P7

- Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

## Obtaining, Evaluating, and Communicating Information

## NGSS.P8

- Communicate scientific and/or technical information (e.g. about a proposed object, tool, process, system) in writing and/or through oral presentations.

- 1.1    1.2    1.3    1.4    1.5
- 2.1    2.2    2.3    2.4
- 3.1    3.2

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