PLTW Launch Computer Science Standards Guide

Hawai'i Computer Science - CSTA Computer Science Standards | K-5

Each PLTW Launch Module integrates Science, Engineering, Computer Science, ELA, and Math and connects to many bodies of standards. This standards guide is focused on Computer Science, and provides standards connections to following CSTA levels:

1. 1A (Grades K-2 / Ages 5-8)
2. 1B (Grades 3-5 / Ages 8-11)

Two pages for each level of CSTA standards are shown: the first view highlights the PLTW Launch Modules that focus on Computer Science more explicitly and provide instruction for a greater number of CSTA standards. The second view highlights the CSTA standards connections to all PLTW Launch Modules by grade level.

In Spring 2023, PTLW submitted all necessary documentation required by the Computer Science Teachers Association 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.

Please note: The information included in this document is subject to change. As with all course materials, we will continue to update as more information becomes available.

PLTW LAUNCH

K-2 Computer Science

		Animals and Algorithms Kindergarten	Animated Storytelling 1st Grade	Grids and Games 2nd Grade
Computing Systems	1A-CS-01 Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.	✓	✓	✓
	1A-CS-02 Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).		✓	✓
	1A-CS-03 Describe basic hardware and software problems using accurate terminology.		✓	✓
Networks and the Internet	1A-NI-04 Explain what passwords are and why we use them, and use strong passwords to protect devices and information from unauthorized access.		✓	✓
Data & Analysis	1A-DA-05 Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.		✓	✓
	1A-DA-06 Collect and present the same data in various visual formats.			
	1A-DA-07 Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions.			
Algorithms & Programming	1A-AP-08 Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.		✓	
	1A-AP-09 Model the way programs store and manipulate data by using numbers or other symbols to represent information.	✓	✓	✓
	1A-AP-10 Develop programs with sequences and simple loops, to express ideas or address a problem	✓	✓	✓
	1A-AP-11 Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.	✓	✓	✓
	1A-AP-12 Develop plans that describe a program's sequence of events, goals, and expected outcomes.	✓	✓	✓
	1A-AP-13 Give attribution when using the ideas and creations of others while developing programs.		✓	✓
	1A-AP-14 Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.	✓	✓	✓
	1A-AP-15 Using correct terminology, describe steps taken and choices made during the iterative process of program development.	✓	✓	✓
Impacts of Computing	1A-IC-16 Compare how people live and work before and after the implementation or adoption of new computing technology.		✓	✓
	1A-IC-17 Work respectfully and responsibility with others online.	✓	✓	✓
	1A-IC-18 Keep login information private, and log off devices appropriately.	✓	✓	✓

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K-2 Computer Science

		Kindergarten						1st Grade					2nd Grade				
		Pushes and Pulls	Sunlight and Weather	Living Things: Needs and Impacts	Structure and Function: Exploring Design	Structure and Function: Human Body	Animals and Algorithms	Light and Sound	Designs Inspired by Nature	Animal Adaptations	Light: Observing the Sun, Moon, and Stars	Animated Storytelling	Materials Science: Properties of Matter	Materials Science: Form and Function	Living Things: Diversity of Life	The Changing Earth	Grids and Games
Computing Systems	1A-CS-01						✓					✓					✓
	1A-CS-02											✓					✓
	1A-CS-03											✓					✓
Networks and the Internet	1A-NI-04											✓					✓
Data & Analysis	1A-DA-05											✓					✓
	1A-DA-06		✓										✓		✓	✓	
	1A-DA-07		✓							✓	✓		✓		✓	✓	
Algorithms & Programming	1A-AP-08											✓					
	1A-AP-09						✓					✓					✓
	1A-AP-10						✓					✓					✓
	1A-AP-11						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1A-AP-12						✓					✓					✓
	1A-AP-13											✓					✓
	1A-AP-14						✓					✓					✓
	1A-AP-15						✓					✓					✓
Impacts of Computing	1A-IC-16											✓					✓
	1A-IC-17	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1A-IC-18	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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3-5 Computer Science

		Programming Patterns 3rd Grade	Input/Output: Computer Systems 4th Grade	Robotics and Automation: Challenge 5th Grade	Infection: Modeling and Simulation 5th Grade
Computing Systems	1B-CS-01 Describe how internal and external parts of computing devices function to form a system.		✓	✓	
	1B-CS-02 Model how computer hardware and software work together as a system to accomplish tasks.	✓	✓		
	1B-CS-03 Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	✓	✓	✓	✓
Networks and the Internet	1B-NI-04 Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.		✓		
	1B-NI-05 Discuss real-world cybersecurity problems and how personal information can be protected.	✓	✓	✓	✓
Data & Analysis	1B-DA-06 Organize and present collected data visually to highlight relationships and support an claim.		✓		✓
	1B-DA-07 Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.		✓		✓
Algorithms & Programming	1B-AP-08 Compare and refine multiple algorithms for the same task and determine which is the most appropriate.	✓	✓	✓	✓
	1B-AP-09 Create programs that use variables to store and modify data.		✓		✓
	1B-AP-10 Create programs that include sequences, events, loops, and conditionals.	✓	✓	✓	✓
	1B-AP-11 Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.	✓	✓	✓	✓
	1B-AP-12 Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.		✓		✓
	1B-AP-13 Use an interative process to plan the development of a program by including others' perspectives and considering user preferences.	✓	✓	✓	✓
	1B-AP-14 Observe intellectual property rights and give appropriate attribution when creating or remixing programs.		✓		✓
	1B-AP-15 Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	✓	✓	✓	✓
	1B-AP-16 Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.	✓	✓		✓
	1B-AP-17 Describe choices made during program development using code comments, presentations, and demonstrations.	✓	✓	✓	✓
Impacts of Computing	1B-IC-18 Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.			✓	
	1B-IC-19 Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.		✓		
	1B-IC-20 Seek diverse perspectives for the purpose of improving computational artifacts.		✓		
	1B-IC-21 Use public domain or creative commons media, and refrain from copying or using material created by others without permission.				

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3-5 Computer Science

		3rd Grade							4th Grade							5th Grade							
		Stability and Motion: Forces and Interactions	Stability and Motion: Science of Flight	Life Cycles and Survival	Variation of Traits	Environmental Changes	Weather: Factors and Hazards	Programming Patterns	Energy Exploration	Waves and the Properties of Light	Organisms: Structure and Function	Input/Output: Human Brain	Earth: Past, Present, and Future	Earth: Human Impact and Natural Disasters	Input/Output: Computer Systems	Matter: Properties and Reactions	Earth's Water and Interconnected Systems	Ecosystems: Flow of Matter and Energy	Patterns in the Universe	Robotics and Automation	Robotics and Automation: Challenge	Infection: Detection	Infection: Modeling and Simulation
Computing Systems	1B-CS-01														✓					✓	✓		
	1B-CS-02							✓							✓					✓			
	1B-CS-03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Networks and the Internet	1B-NI-04														✓								
	1B-NI-05	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Data & Analysis	1B-DA-06		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
	1B-DA-07		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Algorithms & Programming	1B-AP-08							✓							✓						✓		✓
	1B-AP-09														✓								✓
	1B-AP-10							✓							✓						✓		✓
	1B-AP-11							✓							✓						✓		✓
	1B-AP-12														✓					✓			✓
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	1B-AP-14														✓								✓
	1B-AP-15							✓							✓						✓		✓
	1B-AP-16							✓							✓					✓			✓
	1B-AP-17							✓							✓						✓		✓
Impacts of Computing	1B-IC-18																			✓	✓		
	1B-IC-19														✓				✓				
	1B-IC-20														✓				✓				
	1B-IC-21														✓				✓				