PLTW Launch Computer Science Standards Guide

Indiana Academic Standards for Grades K-8 Computer Science | 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 the 2023 Indiana Academic Standards for Computer Science for:

1. Grades K-2
2. Grades 3-5

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

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.

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K-2 Computer Science

		Animals and Algorithms Kindergarten	Animated Storytelling 1st Grade	Grids and Games 2nd Grade
Data & Information	K-2.DI.1: Identify and collect data using digital tools (e.g., take pictures of all blue items, create a document with things that start with “a”).		✓	
	K-2.DI.2: Define stored information as data and when appropriate, copy, search, retrieve, modify, and delete it.		✓	✓
	K-2.DI.3: Model that data can be stored and manipulated using numbers or symbols to represent information.		✓	
	K-2.DI.4: Organize and present data in different visual formats such as charts, graphs, and symbols, and identify and describe patterns to make predictions. (E)		✓	
Computing Devices & Systems	K-2.CD.1: Use appropriate terminology in identifying and describing computer hardware. (E)		✓	✓
	K-2.CD.2: Describe and troubleshoot basic hardware and software problems using appropriate terminology.		✓	✓
	K-2.CD.3: 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.	✓	✓	✓
Programs & Algorithms	K-2.PA.1: Breakdown and plan the order of the steps needed for a desired outcome to accomplish the goal. (E)	✓	✓	✓
	K-2.PA.2: Using age-appropriate vocabulary, explain steps taken and choices made to improve the design of a sequence.	✓	✓	✓
	K-2.PA.3: Develop programs with sequences and simple loops to express ideas or address a problem. (E)	✓	✓	✓
	K-2.PA.4: Identify and fix (debug) errors in sequences and simple loops.	✓	✓	✓
	K-2.PA.5: Model daily processes by creating and following algorithms (i.e., sets of step-by-step instructions) to complete tasks. (E)		✓	
	K-2.PA.6: Give attribution when using the ideas and creations of others while developing programs.		✓	✓
Networking & the Internet	K-2.NI.1: Explain what passwords are, why they are used, and why it is important to develop strong passwords to protect devices and information. (E)		✓	✓
Impacts of Computing	K-2.IC.1: Compare and contrast the effects of technology on communities and social interactions.		✓	✓
	K-2.IC.2: Identify expected behaviors for working responsibly with others online. (E)	✓	✓	✓
	K-2.IC.3: Describe how to keep login information private and log off of 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
Data & Information	K-2.DI.1											✓					
	K-2.DI.2											✓					✓
	K-2.DI.3											✓					
	K-2.DI.4		✓							✓	✓	✓	✓		✓	✓	
Computing Devices & Systems	K-2.CD.1											✓					✓
	K-2.CD.2											✓					✓
	K-2.CD.3						✓					✓					✓
Programs & Algorithms	K-2.PA.1						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	K-2.PA.2						✓					✓					✓
	K-2.PA.3						✓					✓					✓
	K-2.PA.4						✓					✓					✓
	K-2.PA.5											✓					
	K-2.PA.6											✓					✓
Networking & the Internet	K-2.NI.1											✓					✓
Impacts of Computing	K-2.IC.1											✓					✓
	K-2.IC.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	K-2.IC.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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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
Data & Information	3-5.DI.1: Decompose problems and subproblems into parts as a means to solving complex problems. (E)	✓	✓	✓	✓
	3-5.DI.2: Organize and present collected data visually to highlight relationships and support a claim.		✓		✓
	3-5.DI.3: Demonstrate how variables can represent data and are used to store and modify information.		✓		✓
	3-5.DI.4: Describe that data can be represented in different forms understandable by people, including words, symbols, and digital displays of color.		✓		✓
	3-5.DI.5: Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea. (E)		✓		✓
Computing Devices & Systems	3-5.CD.1: Model how computer hardware and software work together to accomplish tasks.	✓	✓		
	3-5.CD.2: Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. (E)	✓	✓	✓	✓
	3-5.CD.3: Describe how internal and external parts of computing devices function to form a system.	✓		✓	
	3-5.CD.4: Describe what distinguishes humans from machines, focusing on human intelligence versus machine intelligence.				
Programs & Algorithms	3-5.PA.1: Collaborate with peers to implement problem-solving steps to create a variety of programming solutions. (E)	✓	✓		✓
	3-5.PA.2: Design programs that incorporate sequences, events, loops, and conditionals. (E)	✓	✓	✓	✓
	3-5.PA.3: Test and debug (i.e., identify and fix errors) a program or algorithm to ensure it runs as intended.	✓	✓	✓	✓
	3-5.PA.4: Observe intellectual property rights and give appropriate attribution when creating or remixing programs. (E)			✓	✓
	3-5.PA.5: Describe choices made during program development using code comments, presentations, and demonstrations. (E)	✓	✓	✓	✓
Networking & the Internet	3-5.NI.1: Discuss real-world cybersecurity problems and how personal information can be protected. (E)	✓	✓	✓	✓
	3-5.NI.2: 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.		✓		
Impact & Culture	3-5.IC.1: Describe the positive and negative impacts of technology on one's personal life, society, and our culture. (E)			✓	
	3-5.IC.2: Seek diverse perspectives for the purpose of improving computational artifacts.		✓		
	3-5.IC.3: Critique computing technologies that have changed the world. Analyze how those technologies influence and/or are influenced by cultural practices and societal biases.			✓	

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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
Data & Information	3-5.DI.1							✓							✓						✓		✓
	3-5.DI.2		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓	✓
	3-5.DI.3														✓								✓
	3-5.DI.4														✓								✓
	3-5.DI.5		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
Computing Devices & Systems	3-5.CD.1							✓							✓					✓			
	3-5.CD.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	3-5.CD.3														✓					✓	✓		
	3-5.CD.4																						
Programs & Algorithms	3-5.PA.1							✓							✓					✓			✓
	3-5.PA.2							✓							✓						✓		✓
	3-5.PA.3							✓							✓						✓		✓
	3-5.PA.4														✓								✓
	3-5.PA.5							✓							✓								✓
Networking & the Internet	3-5.NI.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	3-5.NI.2														✓								
Impact & Culture	3-5.IC.1																				✓		
	3-5.IC.2														✓				✓				
	3-5.IC.3																			✓	✓		