2026 CSTA PK–12

COMPUTER SCIENCE STANDARDS

Validated Alignment of First Lessons with micro:bit CreateAI

First lessons with micro:bit CreateAI

A series of seven lessons introducing AI in general and unpacking what students already know about sorting data, before getting hands-on with micro:bit CreateAI. They collect movement data and sort their physical movements into categories when creating, testing, and improving their own machine learning (ML) models. Students then use their ML model as a new input in a MakeCode program that runs on the micro:bit.Students also have opportunities to discover the risks of bias and importance of diverse training data to make AI tools that work for all people, deepening an understanding of the human role in designing and using AI. This unit of work is designed for teachers and students who have no prior knowledge of AI or machine learning. While intended for 3rd - 5th grade students to learn AI concepts through physical computing experiences, it can also be used with older students who have limited experience with AI.

Learn more: https://microbit.org/teach/lessons/first-lessons-with-microbit-createai/

Alignment Summary

In June 2026, CSTA conducted a rigorous, independent process to validate how these curricular materials align to the 2026 CSTA PK-12 Standards. This process included reviews by multiple independent experts in the CSTA PK-12 Standards, CS teaching, and CS curriculum design. The findings are presented below in two formats: high-level tables summarizing alignment of the curriculum to each concept and/or specialty area, and more granular tables indicating alignment to each standard. Note that the data below reflects only standards that are fully aligned; in many cases, there is partial alignment not indicated below.

Grade 3

Concept	Aligned Standards	Total Standards	Percent Aligned
Algorithms & Design	1	3	33%
Programming	0	5	0%
Data & Analysis	1	3	33%
Systems & Security	0	4	0%
Computing & Society	0	4	0%
Overall	2	19	11%

Grade 4

Concept	Aligned Standards	Total Standards	Percent Aligned
Algorithms & Design	1	3	33%
Programming	0	5	0%
Data & Analysis	0	3	0%
Systems & Security	0	4	0%
Computing & Society	1	4	25%
Overall	2	19	11%

Grade 5

Concept	Aligned Standards	Total Standards	Percent Aligned
Algorithms & Design	1	3	33%
Programming	0	5	0%
Data & Analysis	1	3	33%
Systems & Security	0	4	0%
Computing & Society	0	4	0%
Overall	2	19	11%

Alignment to Grade 3 Foundational Standards

Algorithms & Design

Identifier	Standard	Fully Aligned?
E3-ALG-PS-01	Create an algorithm that includes a combination of sequence, events, iteration, and selection to solve a problem or express an idea.	
E3-ALG-ML-02	Investigate how a machine learning model can change when new data is added to a training set.	✅
E3-ALG-IM-03	Compare how different algorithms may affect outcomes, situations, and people with a wide range of needs.	

Programming

Identifier	Standard	Fully Aligned?
E3-PRO-PD-04	Develop code from a student-created algorithm that includes a combination of sequence, events, iteration, and selection to solve a problem or express an idea.	
E3-PRO-PD-05	Use constructive feedback to improve a program.	
E3-PRO-VD-06	Identify the variables being stored and manipulated in a program.	
E3-PRO-RD-07	Articulate how a specific segment of code contributes to the overall purpose of a program.	
E3-PRO-TR-08	Debug a program that includes a combination of sequence, events, iteration, and selection.	

Data & Analysis

Identifier	Standard	Fully Aligned?
E3-DAT-DC-09	Evaluate numeric and non-numeric data for accuracy and completeness.	✅
E3-DAT-DI-10	Investigate a data question involving relationships between multiple attributes.	
E3-DAT-IM-11	Design a data collection process that addresses the needs of people from different backgrounds or groups.	

Systems & Security

Identifier	Standard	Fully Aligned?
E3-SYS-HW-12	Describe the role of software in a computing system to accomplish tasks or solve problems.	
E3-SYS-SE-13	Evaluate how sharing information online might reveal personally identifiable information and other details.	
E3-SYS-NT-14	Explain how people access the internet to gain information and communicate with each other.	
E3-SYS-IM-15	Describe how widely used computing systems may impact an individual's life and community.	

Computing & Society

Identifier	Standard	Fully Aligned?
E3-SOC-HI-16	Examine how computing innovations have changed the ways people live, work, or communicate over time.	
E3-SOC-ET-17	Describe how new technologies create both benefits and risks in personal and family life.	
E3-SOC-HU-18	Examine why people design and build computing technologies.	
E3-SOC-CE-19	Explain how people in different industries use computing technologies and skills to accomplish their work.	

Alignment to Grade 4 Foundational Standards

Algorithms & Design

Identifier	Standard	Fully Aligned?
E4-ALG-PS-01	Create a written representation of an algorithm that includes a combination of sequence, events, iteration, and selection to solve a problem or express an idea.	
E4-ALG-ML-02	Analyze relationships between the properties of training data and a machine learning model's output.	✅
E4-ALG-IM-03	Evaluate how different algorithms for solving the same problem produce outcomes that may benefit or disadvantage different groups of people.	

Programming

Identifier	Standard	Fully Aligned?
E4-PRO-PD-04	Compare different programming solutions to the same problem based on correctness and clarity.	
E4-PRO-PD-05	Collaborate with a team by offering a meaningful contribution to creating a program.	
E4-PRO-VD-06	Trace how data flows and changes variable values in a program.	
E4-PRO-RD-07	Document a program to clarify its functionality.	
E4-PRO-TR-08	Debug a program incrementally and repeatedly throughout the development process.	

Data & Analysis

Identifier	Standard	Fully Aligned?
E4-DAT-DC-09	Organize collected data into a table using a computational tool, with rows representing records and columns representing attributes.	
E4-DAT-DI-10	Create an explanation that includes at least one data visualization to report the process and results of a data investigation.	
E4-DAT-IM-11	Investigate how data collected about people may affect individuals and groups.	

Systems & Security

Identifier	Standard	Fully Aligned?
E4-SYS-HW-12	Apply a basic troubleshooting process to identify and fix common hardware and software issues.	
E4-SYS-SE-13	Distinguish between authentication and authorization in protecting devices and private information.	
E4-SYS-NT-14	Compare wired and wireless methods that computing devices use to connect to the internet.	
E4-SYS-IM-15	Investigate the impacts of widely used computing systems on natural resources and the environment.	

Computing & Society

Identifier	Standard	Fully Aligned?
E4-SOC-HI-16	Investigate the contributions of diverse individuals and communities in the history of computing.	
E4-SOC-ET-17	Analyze how the limitations of existing technologies can lead to emerging technologies.	
E4-SOC-HU-18	Distinguish between human learning and machine learning processes.	✅
E4-SOC-CE-19	Investigate how the workforce adopts new computing technologies and continues to update their computing skills.	

Alignment to Grade 5 Foundational Standards

Algorithms & Design

Identifier	Standard	Fully Aligned?
E5-ALG-PS-01	Create a visual representation of an algorithm that includes variables and a combination of sequence, events, iteration, and selection to solve a problem or express an idea.	
E5-ALG-ML-02	Train a machine learning model to make a classification or prediction.	✅
E5-ALG-IM-03	Articulate how human-centered design principles are incorporated into the development of a computing technology.	

Programming

Identifier	Standard	Fully Aligned?
E5-PRO-PD-04	Create a novel program by modifying or combining elements of existing programs.	
E5-PRO-PD-05	Construct individual components of a program that are collaboratively assembled into a programming project.	
E5-PRO-VD-06	Use variables to store, compare, and modify data within a program.	
E5-PRO-RD-07	Create embedded or external documentation for a programming project.	
E5-PRO-TR-08	Debug a program using systematic strategies.	

Data & Analysis

Identifier	Standard	Fully Aligned?
E5-DAT-DC-09	Use computational tools to collect and organize different types of data.	
E5-DAT-DI-10	Analyze a dataset to identify the nature and possible sources of variability in the data.	✅
E5-DAT-IM-11	Analyze the benefits and risks of a computing technology that uses collected data.	

Systems & Security

Identifier	Standard	Fully Aligned?
E5-SYS-HW-12	Explain how hardware and software components of a computing system work together to perform input and output operations, processing, and storage.	
E5-SYS-SE-13	Describe the concepts of the CIA triad and how each component is important in protecting information.	
E5-SYS-NT-14	Distinguish between the components of wired and wireless networks.	
E5-SYS-IM-15	Examine how computing systems impact culture and the ways people live and work.	

Computing & Society

Identifier	Standard	Fully Aligned?
E5-SOC-HI-16	Analyze how the inclusion or exclusion of diverse individuals and communities has shaped the design, development, and societal impact of computing technologies.	
E5-SOC-ET-17	Examine how people decide whether or not to use emerging technologies.	
E5-SOC-HU-18	Evaluate when it is appropriate to use or not use computing technologies to solve a problem.	
E5-SOC-CE-19	Examine how professionals collaborate while using computing technologies to solve problems.	