

A large, curved grid pattern made of light gray squares, creating a sense of depth and perspective. The grid is composed of horizontal and vertical lines that curve away from the viewer, giving it a three-dimensional appearance.

2026 CSTA PK-12  
**COMPUTER SCIENCE STANDARDS**  
Validated Alignment of  
First Lessons with Python  
and the micro:bit



# First Lessons with Python and the micro:bit

Help your learners transition from block-based to text-based coding with six familiar projects. These lessons mirror the projects in the “First lessons with MakeCode and the micro:bit” unit of work by mapping blocks to text, providing learners with a first experience using text-based coding with the micro:bit in Python. The micro:bit Python Editor has been designed to help overcome barriers to text-based coding in the classroom, making it easier to be creative by supporting debugging and the discovery of working code snippets. Lesson 1 includes an overview of how to use the editor. Projects include a name badge, animation, using inputs and outputs to make an emotion badge, using sensors to make step counters and nightlights, and finally combining skills from previous lessons to make a rock, paper, scissors game. This unit of work can be used with 3rd - 8th grade students and focuses on algorithm and programming concepts through physical computing experiences.

Learn more: <https://microbit.org/teach/lessons/first-lessons-with-python-and-the-microbit/>

## 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 4

Concept	Aligned Standards	Total Standards	Percent Aligned
Algorithms & Design	0	3	0%
Programming	2	5	40%
Data & Analysis	0	3	0%
Systems & Security	0	4	0%
Computing & Society	0	4	0%
Overall	2	19	11%

## Grade 5

Concept	Aligned Standards	Total Standards	Percent Aligned
Algorithms & Design	0	3	0%
Programming	1	5	20%
Data & Analysis	0	3	0%
Systems & Security	0	4	0%
Computing & Society	0	4	0%
Overall	1	19	5%



# 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.	

