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2026 CSTA PK-12
COMPUTER SCIENCE STANDARDS
Validated Alignment of
API Can Code



API Can Code

API Can Code is an interest-driven high school data science curriculum designed to introduce students to the computational foundations of data science by exploring data that shapes their daily lives.

Learn more: <https://apicancode.umd.edu/curriculum.html>

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.

High School Foundation

Concept	Aligned Standards	Total Standards	Percent Aligned
Algorithms & Design	0	11	0%
Programming	2	9	22%
Data & Analysis	1	8	13%
Systems & Security	1	9	11%
Computing & Society	1	9	11%
Overall	5	46	11%

High School Specialty

Specialty Area	Level	Aligned Standards	Total Standards	Percent Aligned
Data Science	Specialty I	8	14	57%
Data Science	Specialty II	3	15	20%

Alignment to High School Foundational Standards

Algorithms & Design

Identifier	Standard	Fully Aligned?
HS-ALG-PS-01	Design an algorithm using appropriate data structures to solve a problem or express an idea.	
HS-ALG-PS-02	Optimize the design of an algorithm using procedural abstraction and control structures.	
HS-ALG-PS-03	Evaluate algorithms for efficiency, correctness, and clarity, using metrics or test cases.	
HS-ALG-PS-04	Describe the differences between deterministic and probabilistic algorithms.	
HS-ALG-PS-05	Evaluate AI-generated output to assess bias, accuracy, and potential harms.	
HS-ALG-ML-06	Justify the selection of a type of AI algorithm to accomplish a task.	
HS-ALG-ML-07	Evaluate training data by examining its source, quality, representativeness, potential biases, and privacy implications.	
HS-ALG-ML-08	Develop a machine learning model for a chosen task using appropriate data and tools.	
HS-ALG-IM-09	Design a computing technology using human-centered design principles.	
HS-ALG-IM-10	Evaluate the ethical implications, societal impacts, and potential biases of rule-based and data-driven algorithms.	
HS-ALG-IM-11	Articulate the values embedded in the design of an algorithmic system.	

Programming

Identifier	Standard	Fully Aligned?
HS-PRO-PD-12	Create a modular program that uses procedures, external libraries, or objects to improve reusability and readability.	
HS-PRO-PD-13	Use documentation, libraries, application programming interfaces (APIs), and other tools in program development.	✓
HS-PRO-PD-14	Apply appropriate attribution of intellectual property when developing a computing technology.	
HS-PRO-PD-15	Collaborate on a programming project using a defined workflow that includes design documentation and clear task roles.	
HS-PRO-VD-16	Create a program that uses appropriate data structures to store, access, and manipulate data.	
HS-PRO-RD-17	Analyze how a segment of code works, including the role of parameters, return values, and data structures.	✓
HS-PRO-RD-18	Evaluate AI-generated code for accuracy, reliability, and alignment with program requirements.	
HS-PRO-TR-19	Evaluate a computing technology's alignment with design specifications and responsible design values, including its correctness, effectiveness, and user experience.	
HS-PRO-TR-20	Refine a computing technology based on user feedback, testing results, and responsible design values to improve its effectiveness and impact.	

Data & Analysis

Identifier	Standard	Fully Aligned?
HS-DAT-DC-21	Use a computational tool to generate simulated data that fits certain parameters for use in a simulation.	
HS-DAT-DC-22	Create a data dictionary that describes the name, type, and allowable values for each attribute and the logical relationships between variables in a dataset.	
HS-DAT-DC-23	Use a computational tool to clean and organize text-based data.	✓
HS-DAT-DC-24	Evaluate different approaches to verifying consistency and compliance with expected data types, values, and ranges.	
HS-DAT-DI-25	Create a data visualization of a multivariate dataset to answer a question or make a classification or prediction.	
HS-DAT-DI-26	Evaluate a data simulation or visualization to answer a data question, inform decision-making, and identify potential limitations.	
HS-DAT-IM-27	Evaluate the societal, environmental, and ethical implications of large-scale data collection and processing, including within AI applications.	
HS-DAT-IM-28	Debate the efficacy of a policy or regulation to ensure responsible data use.	

Systems & Security

Identifier	Standard	Fully Aligned?
HS-SYS-HW-29	Differentiate an operating system as a special type of software that manages both the hardware and other software components of a computing system, including handling memory and peripherals.	
HS-SYS-HW-30	Demonstrate the capabilities and limitations of a physical or simulated computing device to address a task or problem.	
HS-SYS-SE-31	Identify different types of cybersecurity and physical security measures and the trade-offs for users, data, and devices.	
HS-SYS-SE-32	Classify the causes and impacts of security breaches and social engineering attacks for individuals, industries, communities, and governments.	✓
HS-SYS-SE-33	Formulate a solution to a security flaw in a given system.	
HS-SYS-NT-34	Diagram a network of computing systems, including hardware and software.	
HS-SYS-NT-35	Analyze how the internet functions as a network of networks and how it differs from other types of networks.	
HS-SYS-IM-36	Evaluate the rationale behind a law or policy governing the design and use of computing systems.	
HS-SYS-IM-37	Investigate how computing systems and infrastructure impact society and the environment, identifying who is affected and why.	

Computing & Society

Identifier	Standard	Fully Aligned?
HS-SOC-HI-38	Analyze the historical trajectory of a specific computing technology and how its development is linked to societal and environmental factors.	
HS-SOC-HI-39	Propose modifications to an existing policy or piece of legislation that encourages ethical innovation and minimizes societal risks associated with technology.	
HS-SOC-ET-40	Evaluate the fundamental technological differences between an emerging technology and established technologies and how those differences influence computing.	
HS-SOC-ET-41	Evaluate the societal and environmental impacts of an emerging technology, including those that lead to inequities in access and outcomes.	
HS-SOC-ET-42	Design a conceptual solution to a real-world problem using an emerging technology, analyzing its potential benefits and harms.	
HS-SOC-HU-43	Evaluate how human choices in using, designing, deploying, and regulating computing technologies have risks, benefits, and long-term impacts.	
HS-SOC-HU-44	Debate perspectives on differences between human and artificial intelligence and their implications for consciousness, ethics, and human responsibility.	
HS-SOC-CE-45	Analyze how diverse teams of people use computational thinking and computing technologies to solve problems and express ideas.	
HS-SOC-CE-46	Connect computing knowledge and skills acquired to students' personal goals and career aspirations.	✓

Alignment to High School Specialty Standards

Data Science – Specialty I

Identifier	Standard	Fully Aligned?
S1-DSC-CC-01	Apply exploratory data analysis techniques to non-hierarchical quantitative data.	✓
S1-DSC-CC-02	Interpret metadata when using data collected by others.	✓
S1-DSC-CC-03	Develop a program to manipulate and transform data to prepare for analysis.	
S1-DSC-AM-04	Apply appropriate analytic and visualization techniques for categorical and quantitative data.	✓
S1-DSC-AM-05	Examine missing data and its impact on data analysis.	
S1-DSC-AM-06	Analyze structured categorical and/or quantitative datasets, using computational tools and libraries.	✓
S1-DSC-MI-07	Interpret the results of a data analysis to explain patterns, anomalies, and trends, and connect them back to the original problem or research question.	✓
S1-DSC-MI-08	Explain the appropriateness of predictive models for the specific problem being addressed.	
S1-DSC-MI-09	Explain how dataset size affects model stability and performance.	✓
S1-DSC-VZ-10	Create a data visualization that communicates key findings to diverse audiences.	
S1-DSC-VZ-11	Analyze how graphical conventions in data visualizations support accurate interpretation and how breaking conventions can mislead.	✓
S1-DSC-PP-12	Apply ethical principles to data collection, analysis, and communication to promote privacy, transparency, and accountability.	
S1-DSC-PP-13	Assess how data collection and use may impact marginalized and underrepresented groups.	✓
S1-DSC-PP-14	Document data analysis results in a format appropriate for an audience with diverse backgrounds and perspectives.	

Data Science – Specialty II

Identifier	Standard	Fully Aligned?
S2-DSC-CC-01	Apply exploratory data analysis techniques to a hierarchical structured data source.	✓
S2-DSC-CC-02	Document the origin, structure, and preparation of a dataset to support clarity and reproducibility.	
S2-DSC-CC-03	Develop a program to collect and integrate data from multiple sources.	
S2-DSC-CC-04	Choose appropriate data to collect for a data science project based on available tools, skills, and project goals.	✓
S2-DSC-AM-05	Build a model to explain relationships, make predictions, and evaluate the influence of different variables.	
S2-DSC-AM-06	Evaluate strategies for handling missing data.	
S2-DSC-AM-07	Analyze an unstructured, mixed-type, or high-dimensional dataset using computational tools and libraries.	
S2-DSC-MI-08	Evaluate the performance of models using established metrics.	
S2-DSC-MI-09	Analyze the trade-offs between interpretability, accuracy, and generalizability as they relate to model complexity.	
S2-DSC-MI-10	Analyze how adding or removing variables affects model behavior and performance.	
S2-DSC-VZ-11	Create a visualization that accurately represents data and avoids misleading design choices.	
S2-DSC-VZ-12	Critique a data visualization for misleading elements and their role in spreading misinformation.	
S2-DSC-PP-13	Evaluate ethical, legal, and social considerations when working with large-scale datasets, predictive models, and emerging technologies.	
S2-DSC-PP-14	Evaluate protective measures in data collection, usage, and governance for privacy, security, and fairness.	✓
S2-DSC-PP-15	Translate technical results for diverse audiences in professional communication artifacts.	