High School Foundational (Grades 9–12, Ages 14–18)

Concept	Identifier	Standard
Algorithms & Design	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	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	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.

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Data & Analysis *(continued)*	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	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	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.

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