



CSTA Standards Alignment
Computer Science Standards
 Grade 6-8

Concept	Indicator	Indicator Statement	Activity
Algorithms & Programming	2-AP-10	Use flowcharts and/or pseudocode to address complex problems as algorithms.	Computational Thinking, Advanced Computational Thinking
	2-AP-11	Create clearly named variables that represent different data types and perform operations on their values.	Computational Thinking, Advanced Computational Thinking
	2-AP-12	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.	Computational Thinking, Advanced Computational Thinking
	2-AP-13	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	Computational Thinking, Advanced Computational Thinking
	2-AP-14	Create procedures with parameters to organize code and make it easier to reuse.	Computational Thinking, Advanced Computational Thinking
	2-AP-15	Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	Computational Thinking, Advanced Computational Thinking
	2-AP-17	Systematically test and refine programs using a range of test cases.	Computational Thinking, Advanced Computational Thinking
	2-AP-18	Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	Computational Thinking, Advanced Computational Thinking
	2-AP-19	Document programs in order to make them easier to follow, test, and debug.	Computational Thinking, Advanced Computational Thinking
Computing Systems	2-CS-01	Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.	Community Project Computational Thinking, Advanced Computational Thinking
	2-CS-02	Design projects that combine hardware and software components to collect and exchange data.	Robot Systems Computational Thinking, Advanced Computational Thinking
	2-CS-03	Systematically identify and fix problems with computing devices and their components.	Robot Systems Computational Thinking, Advanced Computational Thinking
Impacts of Computing	2-IC-20	Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.	Community Project
	2-IC-21	Discuss issues of bias and accessibility in the design of existing technologies.	-
	2-IC-22	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	Community Project
	2-IC-23	Describe tradeoffs between allowing information to be public and keeping information private and secure.	-
Networks & the Internet	2-NI-04	Model the role of protocols in transmitting data across networks and the Internet.	-
	2-NI-05	Explain how physical and digital security measures protect electronic information.	-
	2-NI-06	Apply multiple methods of encryption to model the secure transmission of information.	-



CSTA Standards Alignment
Computer Science Standards
Grade 9-10

Concept	Indicator	Indicator Statement	Activity
Algorithms & Programming	3A-AP-13	Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.	Computational Thinking, Advanced Computational Thinking
	3A-AP-14	Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	Computational Thinking, Advanced Computational Thinking
	3A-AP-15	Justify the selection of specific control structures when tradeoffs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made.	Computational Thinking, Advanced Computational Thinking
	3A-AP-16	Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.	Computational Thinking, Advanced Computational Thinking
	3A-AP-17	Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.	Computational Thinking, Advanced Computational Thinking
	3A-AP-18	Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	Computational Thinking, Advanced Computational Thinking
	A-AP-19	Systematically design and develop programs for broad audiences by incorporating feedback from users.	Computational Thinking, Advanced Computational Thinking
	3A-AP-20	Evaluate licenses that limit or restrict use of computational artifacts when using resources such as libraries.	-
	3A-AP-21	Evaluate and refine computational artifacts to make them more usable and accessible.	Computational Thinking, Advanced Computational Thinking
	3A-AP-22	Design and develop computational artifacts working in team roles using collaborative tools.	Computational Thinking, Advanced Computational Thinking
	3A-AP-23	Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.	Computational Thinking, Advanced Computational Thinking
Computing Systems	3A-CS-01	Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.	Computational Thinking, Advanced Computational Thinking
	3A-CS-02	Compare levels of abstraction and interactions between application software, system software, and hardware layers.	Computational Thinking, Advanced Computational Thinking
	3A-CS-03	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	Computational Thinking, Advanced Computational Thinking
Data & Analysis	3A-DA-09	Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.	Computational Thinking, Advanced Computational Thinking
	3A-DA-10	Evaluate the tradeoffs in how data elements are organized and where data is stored.	Computational Thinking, Advanced Computational Thinking
	3A-DA-11	Create interactive data visualizations using software tools to help others better understand real-world phenomena.	Community Project

	3A-DA-12	Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.	Computational Thinking, Advanced Computational Thinking
Impacts of Computing	3A-IC-24	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.	Computational Thinking
	3A-IC-25	Test and refine computational artifacts to reduce bias and equity deficits.	Community Project
	3A-IC-26	Demonstrate ways a given algorithm applies to problems across disciplines.	Computational Thinking, Advanced Computational Thinking
	3A-IC-27	Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	All
	3A-IC-28	Explain the beneficial and harmful effects that intellectual property laws can have on innovation.	Community Project
	3A-IC-29	Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.	Community Project
	3A-IC-30	Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.	Community Project
Networks & the Internet	3A-NI-04	Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.	Robot Systems
	3A-NI-05	Give examples to illustrate how sensitive data can be affected by malware and other attacks.	-
	3A-NI-06	Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.	-
	3A-NI-07	Compare various security measures, considering tradeoffs between the usability and security of a computing system.	-
	3A-NI-08	Explain tradeoffs when selecting and implementing cybersecurity recommendations.	-