Public Schools of North Carolina
State Board of Education | Department of Public Instruction

Crosswalk for the 2020 North Carolina K12 Computer Science Standards and the 2017 CSTA Computer Science Standards

This document is designed to help North Carolina educators teach the NC Standard Course of Study for Computer Science.

This document is a general comparison of the 2020 NC K12 Computer Science Standards and the 2017 Computer Science Teachers Association Computer Science Standards. It provides initial insight into sameness and difference between these two sets of standards.

Kindergarten through Second Grade

NC CS Standard	CSTA Standard	Comments
Computing Systems - Devices		
K2-CS-01 Choose appropriate devices to perform a variety of classroom tasks.		This is a new standard addressing a new topic
Computing Systems - Hardware & Software		
K2-CS-02 Describe the function of common physical components of computing systems (hardware) with appropriate terminology.	**1A-CS-02** Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).	This standard was rewritten to simplify the language.
K2-CS-03 Operate appropriate software to perform a variety of tasks.	**1A-CS-01** Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.	This standard is the result of splitting a complex standard which had more than one standard.
Computing Systems - Troubleshooting		
K2-CS-04 Describe basic hardware and software problems with accurate terminology.	**1A-CS-03** Describe basic hardware and software problems using accurate terminology.	This standard was rewritten to clarify the language.
Networks & the Internet - Network Communication & Organization		
K2-NI-01 Illustrate how information is broken down into smaller pieces and can be reassembled.	**1B-NI-04** Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.	This new standard is designed to support an existing standard in a higher grade band.
Networks & the Internet - Cybersecurity		
K2-NI-02 Apply knowledge of what passwords are and why we use strong passwords to protect devices and information from unauthorized access.	**1A-NI-04** Explain what passwords are and why we use them, and use strong passwords to protect devices and information from unauthorized access.	This standard was rewritten to conform to DPI policies.

K2-NI-03 Discover your digital footprint and how personal information can be protected.	**1B-NI-05** Discuss real-world cybersecurity problems and how personal information can be protected.	This new standard is designed to support an existing standard in a higher grade band.
Data & Analysis - Storage		
K2-DA-01 Store, copy, search, retrieve, modify, and delete information using a computing device.	**1A-DA-05** Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.	This standard is the result of splitting a complex standard which had more than one standard.
K2-DA-02 Define information stored on a computing device as data.	**1A-DA-05** Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.	This standard is the result of splitting a complex standard which had more than one standard.
Data & Analysis - Collection Visualization & Transformation		
K2-DA-03 Collect and present the same data in various visual formats.	**1A-DA-06** Collect and present the same data in various visual formats.	
Data & Analysis - Inference & Models		
K2-DA-04 Make predictions with patterns in data visualizations.	**1A-DA-07** Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions.	This standard was rewritten to simplify the language.
Algorithms & Programming - Algorithms		
K2-AP-01 Model daily processes with algorithms to complete tasks.	**1A-AP-08** Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.	This standard was rewritten to simplify the language.
Algorithms & Programming - Variables		
K2-AP-02 Demonstrate how programs store and manipulate data by using numbers or other symbols to represent information.	**1A-AP-09** Model the way programs store and manipulate data by using numbers or other symbols to represent information.	This standard was rewritten to conform to DPI policies.

Algorithms & Programming - Control		
K2-AP-03 Develop programs with sequences and simple loops to express ideas or address a problem.	**1A-AP-10** Develop programs with sequences and simple loops, to express ideas or address a problem.	
Algorithms & Programming - Modularity		
K2-AP-04 Decompose the steps needed to solve a problem into a precise sequence of instructions.	**1A-AP-11** Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.	
Algorithms & Programming - Program Development		
K2-AP-05 Develop plans that describe a program's sequence of events, goals, and expected outcomes.	**1A-AP-12** Develop plans that describe a program's sequence of events, goals, and expected outcomes.	
K2-AP-06 Give attribution when using the ideas and creations of others while developing programs.	**1A-AP-13** Give attribution when using the ideas and creations of others while developing programs.	
K2-AP-07 Identify and debug errors in an algorithm or program that includes sequences and simple loops.	**1A-AP-14** Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.	This standard was rewritten to simplify the language.
K2-AP-08 Using correct terminology, describe steps taken and choices made during the iterative process of program development	**1A-AP-15** Using correct terminology, describe steps taken and choices made during the iterative process of program development.	
Impacts of Computing - Culture		
K2-IC-01 Compare how people live and work before and after the implementation or adoption of new computing technology.	**1A-IC-16** Compare how people live and work before and after the implementation or adoption of new computing technology.	
K2-IC-02 Select software that meets the diverse needs and preferences for the technology individuals use in the classroom.	**1A-CS-01** Select and operate appropriate software to perform a variety of tasks, and recognize that users have different needs and preferences for the technology they use.	This standard is the result of splitting a complex standard which had more than one standard.
Impacts of Computing - Social Interactions		

K2-IC-03 Work respectfully and responsibly with others online.	**1A-IC-17** Work respectfully and responsibly with others online.	
Impacts of Computing - Safety Law & Ethics		
K2-IC-04 Model responsible login and logoff procedures on all devices.	**1A-IC-18** Keep login information private, and log off of devices appropriately.	This standard was rewritten to simplify the language.

Grades Third through Fifth

NC CS Standard	CSTA Standard	Comments
Computing Systems - Devices		
35-CS-01 Evaluate the features available on digital devices to perform a variety of classroom tasks.		This is a new standard addressing a new topic
Computing Systems - Hardware & Software		
35-CS-02 Model how computer hardware and software work together as a system to accomplish tasks.	**1B-CS-02** Model how computer hardware and software work together as a system to accomplish tasks.	
Computing Systems - Troubleshooting		
35-CS-03 Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	**1B-CS-03** Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	
Networks & the Internet - Network Communication & Organization		
35-NI-01 Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.	**1B-NI-04** Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.	
Networks & the Internet - Cybersecurity		
35-NI-02 Explain your digital footprint and how personal information can be protected.	**1B-NI-05** Discuss real-world cybersecurity problems and how personal information can be protected.	This standard was rewritten to simplify the language.
Data & Analysis - Storage		
35-DA-01 Identify the type of data encoded in a file based on file extension.		This is a new standard addressing a new topic

35-DA-02 Illustrate the process of file management and version control.		This is a new standard addressing a new topic
Data & Analysis - Collection Visualization & Transformation		
35-DA-03 Organize and present collected data visually to highlight relationships and support a claim.	**1B-DA-06** Organize and present collected data visually to highlight relationships and support a claim.	
35-DA-04 Communicate using data to highlight or predict outcomes.	**1B-DA-07** Use data to highlight or propose cause-and- effect relationships, predict outcomes, or communicate an idea.	This standard was rewritten to simplify the language.
Algorithms & Programming - Algorithms		
35-AP-01 Create multiple algorithms for the same task to determine which is the most accurate and efficient.	**1B-AP-08** Compare and refine multiple algorithms for the same task and determine which is the most appropriate.	This standard was rewritten to simplify the language.
Algorithms & Programming - Variables		
35-AP-02 Create programs that use variables to store and modify data.	**1B-AP-09** Create programs that use variables to store and modify data.	
Algorithms & Programming - Control		
35-AP-03 Construct programs that include sequences.	**1B-AP-10** Create programs that include sequences, events, loops, and conditionals.	This standard is the result of splitting a complex standard which had more than one standard.
35-AP-04 Construct programs using simple loops.	**1B-AP-10** Create programs that include sequences, events, loops, and conditionals.	This standard is the result of splitting a complex standard which had more than one standard.
35-AP-05 Construct programs that implement conditionals.	**1B-AP-10** Create programs that include sequences, events, loops, and conditionals.	This standard is the result of splitting a complex standard which had more than one standard.
Algorithms & Programming - Modularity		

35-AP-06 Decompose problems into smaller, manageable, subproblems to facilitate the program development process.	**1B-AP-11** Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.	
35-AP-07 Modify, remix, or incorporate portions of an existing program into one's own work.	**1B-AP-12** Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.	This standard was rewritten to simplify the language.
Algorithms & Programming - Program Development		
35-AP-08 Apply an iterative process to the development of a program by including diverse perspectives and considering user preferences.	**1B-AP-13** Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.	This standard was rewritten to simplify the language.
35-AP-09 Give appropriate attribution when creating or remixing programs while respecting intellectual property rights.	**1B-AP-14** Observe intellectual property rights and give appropriate attribution when creating or remixing programs.	This standard was rewritten to simplify the language.
35-AP-10 Identify and debug errors in an algorithm or program to ensure it runs as intended.	**1B-AP-15** Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	This standard was rewritten to simplify the language.
35-AP-11 Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.	**1B-AP-16** Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.	
35-AP-12 Describe choices made during program development using code comments, presentations, and demonstrations.	**1B-AP-17** Describe choices made during program development using code comments, presentations, and demonstrations.	
Impacts of Computing - Culture		
35-IC-01 Compare computing technologies that have changed the world and how they both influence and are influenced by cultural practices.	**1B-IC-18** Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.	This standard was rewritten to conform to DPI policies.
35-IC-02 Explore the tools that can be used to improve accessibility and usability of technology products for the diverse needs and wants of users.	**1B-IC-19** Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.	This standard was rewritten to conform to DPI policies.

Impacts of Computing - Social Interactions		
35-IC-03 Seek diverse perspectives with collaboration for the purpose of improving computational artifacts.	**1B-IC-20** Seek diverse perspectives for the purpose of improving computational artifacts.	This standard was rewritten to simplify the language.
35-IC-04 Exhibit positive digital citizenship and social responsibility.		This is a new standard addressing a new topic
Impacts of Computing - Safety Law & Ethics		
35-IC-05 Utilize public domain or creative commons media, and refrain from copying or using material created by others without permission.	**1B-IC-21** Use public domain or creative commons media, and refrain from copying or using material created by others without permission.	This standard was rewritten to simplify the language.

Grades Sixth through Eighth

NC CS Standard	CSTA Standard	Comments
Computing Systems - Devices		
68-CS-01 Understand the design of computing devices based on an analysis of how users interact with the devices.	**2-CS-01** Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.	This standard was rewritten to simplify the language.
Computing Systems - Hardware & Software		
68-CS-02 Design projects that combine hardware and software components to collect and exchange data.	**2-CS-02** Design projects that combine hardware and software components to collect and exchange data.	
Computing Systems - Troubleshooting		
68-CS-03 Systematically identify and fix problems with computing devices and components.	**2-CS-03** Systematically identify and fix problems with computing devices and their components.	This standard was rewritten to simplify the language.
Networks & the Internet - Network Communication & Organization		
68-NI-01 Analyze different ways that data is transferred across a network and the role of protocols in transmitting data.	**2-NI-04** Model the role of protocols in transmitting data across networks and the Internet.	This standard was rewritten to clarify the standard
Networks & the Internet - Cybersecurity		
68-NI-02 Explain how physical and digital security measures protect electronic information.	**2-NI-05** Explain how physical and digital security measures protect electronic information.	
68-NI-03 Explain permission and authorizations to access resources to computer systems online.		This is a new standard addressing a new topic
68-NI-04 Apply multiple methods of encryption to model the secure transmission of information.	**2-NI-06** Apply multiple methods of encryption to model the secure transmission of information.	
Data & Analysis - Storage		

68-DA-01 Represent data using multiple encoding schemes.	**2-DA-07** Represent data using multiple encoding schemes.	
Data & Analysis - Collection Visualization & Transformation		
68-DA-02 Collect data using computational tools.	**2-DA-08** Collect data using computational tools and transform the data to make it more useful and reliable.	This standard is the result of splitting a complex standard which had more than one standard.
68-DA-03 Transform the collected data to make it more useful and	**2-DA-08** Collect data using computational tools and transform the data to make it more useful and reliable.	This standard is the result of splitting a complex standard which had more than one standard.
Data & Analysis - Inference & Models		
68-DA-04 Refine computational models based on the data they have generated and/or data collected.	**2-DA-09** Refine computational models based on the data they have generated.	This standard was rewritten to clarify the standard
Algorithms & Programming - Algorithms		
68-AP-01 Implement flowcharts and/or pseudocode to address complex problems as algorithms.	**2-AP-10** Use flowcharts and/or pseudocode to address complex problems as algorithms.	This standard was rewritten to conform to DPI policies.
Algorithms & Programming - Variables		
68-AP-02 Create clearly named variables that represent different data types.	**2-AP-11** Create clearly named variables that represent different data types and perform operations on their values.	This standard was rewritten to simplify the language.
Algorithms & Programming - Control		
68-AP-03 Design and iteratively develop programs that combine control structures including nested loops and compound conditionals.	**2-AP-12** Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.	
68-AP-04 Construct programs that include events.		This is a new standard addressing a new topic

Algorithms & Programming - Modularity		
68-AP-05 Organize problems and subproblems into parts.	**2-AP-13** Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	This standard is the result of splitting a complex standard which had more than one standard.
68-AP-06 Explain the design, implementation, and review of programs	**2-AP-13** Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	This standard is the result of splitting a complex standard which had more than one standard.
68-AP-07 Create procedures with parameters to organize code and make it easier to reuse groups of instructions.	**2-AP-14** Create procedures with parameters to organize code and make it easier to reuse.	This standard was rewritten to simplify the language.
Algorithms & Programming - Program Development		
68-AP-08 Assess feedback from team members and users to refine a solution that meets user needs.	**2-AP-15** Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	This standard was rewritten to conform to DPI policies.
68-AP-09 Incorporate existing code and media into original programs and give attribution.	**2-AP-16** Incorporate existing code, media, and libraries into original programs, and give attribution.	This standard was rewritten to simplify the language.
68-AP-10 Systematically test and refine programs using a range of test cases.	**2-AP-17** Systematically test and refine programs using a range of test cases.	
68-AP-11 Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	**2-AP-18** Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	
68-AP-12 Document programs in order to make them easier to follow, test, and debug.	**2-AP-19** Document programs in order to make them easier to follow, test, and debug.	
Impacts of Computing - Culture		
68-IC-01 Compare tradeoffs associated with computing technologies that affect everyday activities and career options.	**2-IC-20** Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.	This standard was rewritten to simplify the language.

68-IC-02 Describe how equity, access, and influence impact the distribution of computing resources in a global society.	**3B-IC-26** Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.	This new standard is designed to support an existing standard in a higher grade band.
68-IC-03 Discuss issues of bias and accessibility in the design of existing technologies.	**2-IC-21** Discuss issues of bias and accessibility in the design of existing technologies.	
68-IC-04 Collaborate, model, and promote effective research strategies for assessing and evaluating innovative resources.		This is a new standard addressing a new topic
Impacts of Computing - Social Interactions		
68-IC-05 Collaborate with many contributors to create a computational artifact.	**2-IC-22** Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	This standard was rewritten to simplify the language.
68-IC-06 Utilize tools and methods for collaboration on a project to increase connectivity of peers.	**3A-IC-27** Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	This new standard is designed to support an existing standard in a higher grade band.
68-IC-07 Examine the benefits and drawbacks of a digital footprint and online identity		This is a new standard addressing a new topic
68-IC-08 Understand how online interactions make an impact on the social, emotional, and physical aspect of others		This is a new standard addressing a new topic
Impacts of Computing - Safety Law & Ethics		
68-IC-09 Compare tradeoffs between allowing information to be public and keeping information private and secure.	**2-IC-23** Describe tradeoffs between allowing information to be public and keeping information private and secure.	This standard was rewritten to conform to DPI policies.
68-IC-10 Explore how laws and regulations impact the development and use of software	**3B-IC-28** Debate laws and regulations that impact the development and use of software.	This new standard is designed to support an existing standard in a higher grade band.

Introduction to Computer Science

NC CS Standard	CSTA Standard	Comments
Computing Systems - Devices		
ICS-CS-01 Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.	**3A-CS-01** Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.	
Computing Systems - Hardware & Software		
ICS-CS-02 Compare levels of abstraction and interactions between application software, system software, and hardware layers.	**3A-CS-02** Compare levels of abstraction and interactions between application software, system software, and hardware layers.	
ICS-CS-03 Explain the roles of operating systems including memory management, data storage/retrieval, process management, and access control.	**3B-CS-01** Categorize the roles of operating system software.	This new standard is designed to support an existing standard in a higher grade band.
Computing Systems - Troubleshooting		
ICS-CS-04 Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	**3A-CS-03** Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	
Networks & the Internet - Network Communication & Organization		
ICS-NI-01 Evaluate the relationship between routers, switches, servers, and topology with regard to networks.	**3A-NI-04** Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.	This new standard is designed to support an existing standard in a higher grade band.
Networks & the Internet - Cybersecurity		
ICS-NI-02 Identify examples to illustrate how sensitive data can be affected by malware and other attacks.	**3A-NI-05** Give examples to illustrate how sensitive data can be affected by malware and other attacks.	This standard was rewritten to conform to DPI policies.

ICS-NI-03 Recommend cybersecurity measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.	**3A-NI-06** Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.	This standard was rewritten to clarify the language.
ICS-NI-04 Compare various security measures and consider tradeoffs between the usability and security of a computing system.	**3A-NI-07** Compare various security measures, considering tradeoffs between the usability and security of a computing system.	
Data & Analysis - Storage		
ICS-DA-01 Compare different binary representations of data, including text, sound, images, and numbers.	**3A-DA-09** Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.	This standard was rewritten to simplify the language.
ICS-DA-02 Evaluate the tradeoffs in how data elements are organized and where data is stored.	**3A-DA-10** Evaluate the tradeoffs in how data elements are organized and where data is stored.	
Data & Analysis - Collection Visualization & Transformation		
ICS-DA-03 Create interactive data visualizations using software tools to help others better understand real-world phenomena.	**3A-DA-11** Create interactive data visualizations using software tools to help others better understand real-world phenomena.	
Data & Analysis - Inference & Models		
ICS-DA-04 Create computational models that represent the relationships among different elements of data collected.	**3A-DA-12** Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.	This standard was rewritten to simplify the language.
Algorithms & Programming - Algorithms		
ICS-AP-01 Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.	**3A-AP-13** Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.	
ICS-AP-02 Explain the use of artificial intelligence within computing systems.		This is a new standard addressing a new topic
Algorithms & Programming - Variables		

ICS-AP-03 Utilize lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	**3A-AP-14** Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	This standard was rewritten to conform to DPI policies.
Algorithms & Programming - Control		
ICS-AP-04 Justify the selection of specific control structures, considering implementation, readability, and program performance.	**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.	This standard was rewritten to simplify the language.
ICS-AP-05 Iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.	**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.	This standard was rewritten to conform to DPI policies.
Algorithms & Programming - Modularity		
ICS-AP-06 Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.	**3A-AP-17** Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.	
ICS-AP-07 Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	**3A-AP-18** Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	
ICS-AP-08 Systematically design programs for broad audiences.	**3A-AP-19** Systematically design and develop programs for broad audiences by incorporating feedback from users.	This standard is the result of splitting a complex standard which had more than one standard.
ICS-AP-09 Refine programs by incorporating feedback from users.	**3A-AP-19** Systematically design and develop programs for broad audiences by incorporating feedback from users.	This standard is the result of splitting a complex standard which had more than one standard.
Algorithms & Programming - Program Development		

ICS-AP-10 Evaluate licenses that limit or restrict use of computational artifacts when using resources such as software libraries.	**3A-AP-20** Evaluate licenses that limit or restrict use of computational artifacts when using resources such as libraries.	This standard was rewritten to clarify the language.
ICS-AP-11 Evaluate computational artifacts for usability.	**3A-AP-21** Evaluate and refine computational artifacts to make them more usable and accessible.	This standard is the result of splitting a complex standard which had more than one standard.
ICS-AP-12 Modify computational artifacts to increase usability and accessibility.	**3A-AP-21** Evaluate and refine computational artifacts to make them more usable and accessible.	This standard is the result of splitting a complex standard which had more than one standard.
ICS-AP-13 Develop computational artifacts working in team roles using collaborative tools.	**3A-AP-22** Design and develop computational artifacts working in team roles using collaborative tools.	This standard was rewritten to simplify the language.
ICS-AP-14 Explain design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.	**3A-AP-23** Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.	This standard was rewritten to simplify the language.
Impacts of Computing - Culture		
ICS-IC-01 Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.	**3A-IC-24** Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.	
ICS-IC-02 Elaborate how computational innovations have and may continue to impact society.		This is a new standard addressing a new topic
ICS-IC-03 Evaluate how equity, access, and influence impact distribution of computing resources in a global society.	**3B-IC-26** Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.	This new standard is designed to support an existing standard in a higher grade band.
ICS-IC-04 Test computational artifacts to reduce bias and equity deficits.	**3A-IC-25** Test and refine computational artifacts to reduce bias and equity deficits.	This standard was rewritten to simplify the language.
ICS-IC-05 Demonstrate ways a given algorithm applies to problems across disciplines.	**3A-IC-26** Demonstrate ways a given algorithm applies to problems across disciplines.	

Impacts of Computing - Social Interactions		
ICS-IC-06 Utilize tools and methods for collaboration on a project to increase connectivity of peers.	**3A-IC-27** Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	This standard was rewritten to simplify the language.
Impacts of Computing - Safety Law & Ethics		
ICS-IC-07 Explain the beneficial and harmful effects that intellectual property laws can have on innovation.	**3A-IC-28** Explain the beneficial and harmful effects that intellectual property laws can have on innovation.	
ICS-IC-08 Explain privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.	**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.	
ICS-IC-09 Evaluate the social and economic implications of privacy in the context of safety, law, and ethics.	**3A-IC-30** Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.	

High School Level 1 CS

NC CS Standard	CSTA Standard	Comments
Computing Systems - Devices		
HS-CS-01 Describe the use of artificial intelligence within computing systems.	**3B-AP-08** Describe how artificial intelligence drives many software and physical systems.	This standard was rewritten to simplify the language.
Computing Systems - Hardware & Software		
HS-CS-02 Explain how computing devices manage and allocate shared resources.		This is a new standard addressing a new topic
Computing Systems - Troubleshooting		
HS-CS-03 Illustrate the ways computing systems implement logic, input, and output through hardware components.	**3B-CS-02** Illustrate ways computing systems implement logic, input, and output through hardware components.	
HS-CS-04 Utilize guidelines that convey systematic troubleshooting strategies that debug computer systems.	**3A-CS-03** Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	This is a new standard to expand on a standard from an earlier band.
Networks & the Internet - Network Communication & Organization		
HS-NI-01 Identify issues of network functionality in computational artifact design.	**3B-NI-03** Describe the issues that impact network functionality (e.g., bandwidth, load, delay, topology).	This standard is the result of splitting a complex standard which had more than one standard.
HS-NI-02 Analyze issues of network functionality in computational artifact design.	**3B-NI-03** Describe the issues that impact network functionality (e.g., bandwidth, load, delay, topology).	This standard is the result of splitting a complex standard which had more than one standard.
Networks & the Internet - Cybersecurity		

HS-NI-03 Identify issues of unauthorized access and cybersecurity in computational artifact design.	**3B-NI-04** Compare ways software developers protect devices and information from unauthorized access.	This standard is the result of splitting a complex standard which had more than one standard.
HS-NI-04 Analyze issues of unauthorized access and cybersecurity in computational artifact design.	**3B-NI-04** Compare ways software developers protect devices and information from unauthorized access.	This standard is the result of splitting a complex standard which had more than one standard.
HS-NI-05 Explain tradeoffs when selecting and implementing cybersecurity recommendations for various scenarios based on factors such as efficiency,	**3A-NI-08** Explain tradeoffs when selecting and implementing cybersecurity recommendations.	This standard was moved to a different grade band.
Data & Analysis - Collection Visualization & Transformation		
HS-DA-01 Identify patterns in data representing complex systems with select data analysis tools and techniques.	**3B-DA-05** Use data analysis tools and techniques to identify patterns in data representing complex systems.	This standard was rewritten to simplify the language.
HS-DA-02 Select appropriate data collection tools and techniques.	**3B-DA-06** Select data collection tools and techniques to generate data sets that support a claim or communicate information.	This standard is the result of splitting a complex standard which had more than one standard.
HS-DA-03 Compile data sets that support a claim or communicate information.	**3B-DA-06** Select data collection tools and techniques to generate data sets that support a claim or communicate information.	This standard is the result of splitting a complex standard which had more than one standard.
Data & Analysis - Inference & Models		
HS-DA-04 Identify the ability of models and simulations to test hypotheses.	**3B-DA-07** Evaluate the ability of models and simulations to test and support the refinement of hypotheses.	This standard was rewritten to simplify the language.
HS-DA-05 Formulate hypotheses with select models and simulations.		This is a new standard addressing a new topic
Algorithms & Programming - Algorithms		

HS-AP-01 Identify artificial intelligence algorithms.		This is a new standard addressing a new topic
HS-AP-02 Solve computational problems with classic algorithms.	**3B-AP-10** Use and adapt classic algorithms to solve computational problems.	This standard was rewritten to conform to DPI policies.
HS-AP-03 Evaluate algorithms in terms of their efficiency, correctness, and clarity.	**3B-AP-11** Evaluate algorithms in terms of their efficiency, correctness, and clarity.	
Algorithms & Programming - Variables		
HS-AP-04 Select an appropriate data structure for information of a given problem.	**3B-AP-12** Compare and contrast fundamental data structures and their uses.	This standard was rewritten to simplify the language.
Algorithms & Programming - Control		
HS-AP-05 Illustrate the flow of execution of a recursive algorithm.	**3B-AP-13** Illustrate the flow of execution of a recursive algorithm.	
Algorithms & Programming - Modularity		
HS-AP-06 Identify a large-scale computational problem.	**3B-AP-15** Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.	This standard is the result of splitting a complex standard which had more than one standard.
HS-AP-07 Analyze general patterns applicable to a solution.	**3B-AP-15** Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.	This standard is the result of splitting a complex standard which had more than one standard.
HS-AP-08 Create computational artifacts with pre-existing procedures, external components, libraries and APIs.	**3A-AP-18** Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	This new standard is designed to support an existing standard in a higher grade band.
Algorithms & Programming - Program Development		

HS-AP-09 Create a computational artifact through an industry-standard process.	**3B-AP-17** Plan and develop programs for broad audiences using a software life cycle process.	This standard was rewritten to conform to DPI policies.
HS-AP-10 Justify that a computational artifact meets design specifications with systematic testing and debugging methods.	**3B-AP-21** Develop and use a series of test cases to verify that a program performs according to its design specifications.	This standard was rewritten to conform to DPI policies.
HS-AP-11 Construct a computational artifact as a team through industry appropriate collaborative tools and processes.	**3B-AP-20** Use version control systems, integrated development environments (IDEs), and collaborative tools and practices (code documentation) in a group software project.	This standard is the result of splitting a complex standard which had more than one standard.
HS-AP-12 Compose standard documentation for computational artifacts to make it easier to follow, test, and debug.	**3B-AP-20** Use version control systems, integrated development environments (IDEs), and collaborative tools and practices (code documentation) in a group software project.	This standard is the result of splitting a complex standard which had more than one standard.
HS-AP-13 Modify an existing computational artifact for additional functionality.	**3B-AP-22** Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g., breaking other functionality).	This standard is the result of splitting a complex standard which had more than one standard.
HS-AP-14 Discuss intended and unintended implications of a modified computational artifact.	**3B-AP-22** Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g., breaking other functionality).	This standard is the result of splitting a complex standard which had more than one standard.
HS-AP-15 Develop computational artifacts for multiple platforms.	**3B-AP-19** Develop programs for multiple computing platforms.	
Impacts of Computing - Culture		
HS-IC-01 Evaluate computational artifacts for their effects on society.	**3B-IC-25** Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.	This standard is the result of splitting a complex standard which had more than one standard.
HS-IC-02 Make computational artifact recommendations for maximized beneficial and minimal harmful effects on society.	**3B-IC-25** Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.	This standard is the result of splitting a complex standard

		which had more than one standard.
HS-IC-03 Predict how computational innovations that revolutionized aspects of our culture might evolve.	**3B-IC-27** Predict how computational innovations that have revolutionized aspects of our culture might evolve.	This standard was rewritten to clarify the language.
HS-IC-04 Evaluate how equity, access, and influence impact distribution of computing resources in a global society.	**3B-IC-26** Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.	This standard was rewritten to simplify the language.
HS-IC-05 Create computational artifacts to ensure accessibility and reduce computational bias.	**3A-IC-25** Test and refine computational artifacts to reduce bias and equity deficits.	This is a new standard to expand on a standard from an earlier band.
Impacts of Computing - Social Interactions		
HS-IC-06 Utilize tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	**3A-IC-27** Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.	This is a new standard to expand on a standard from an earlier band.