



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

**Crosswalk for the 2020 North Carolina K12 Computer Science Standards aligned with Project Lead the Way *CS Essentials*.**

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

This document is a general alignment of the 2020 NC K12 Computer Science Standards which are based on the 2017 Computer Science Teachers Association Computer Science Standards to a common national curriculum.

# High School Introduction to CS

## Mapped to *Project Lead the Way CS Essentials*

NC Standard	Project Lead the Way CS Essentials			
	1	2	3	4
<b>ICS-DA-01</b> Compare different binary representations of data, including text, sound, images, and numbers.				
<b>ICS-DA-02</b> Evaluate the tradeoffs in how data elements are organized and where data is stored.	✓	✓	✓	
<b>ICS-DA-03</b> Create interactive data visualizations using software tools to help others better understand real-world phenomena.				
<b>ICS-DA-04</b> Create computational models that represent the relationships among different elements of data collected.				
<b>ICS-AP-01</b> Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.	✓	✓	✓	✓
<b>ICS-AP-02</b> Explain the use of artificial intelligence within computing systems.				
<b>ICS-AP-03</b> Utilize lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.	✓		✓	
<b>ICS-AP-04</b> Justify the selection of specific control structures, considering implementation, readability, and program performance.	✓		✓	✓
<b>ICS-CS-01</b> Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.	✓	✓	✓	✓
<b>ICS-CS-02</b> Compare levels of abstraction and interactions between application software, system software, and hardware layers.	✓		✓	

<b>ICS-CS-03</b> Explain the roles of operating systems including memory management, data storage/retrieval, process management, and access control.				
<b>ICS-CS-04</b> Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.	✓	✓	✓	
<b>ICS-NI-01</b> Evaluate the relationship between routers, switches, servers, and topology with regard to networks.				
<b>ICS-NI-02</b> Identify examples to illustrate how sensitive data can be affected by malware and other attacks.	✓			
<b>ICS-NI-03</b> Recommend cybersecurity measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.	✓			
<b>ICS-NI-04</b> Compare various security measures and consider tradeoffs between the usability and security of a computing system.				
<b>ICS-AP-05</b> Iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.	✓	✓	✓	✓
<b>ICS-AP-06</b> Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.	✓	✓	✓	✓
<b>ICS-AP-07</b> Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.	✓	✓	✓	✓
<b>ICS-AP-08</b> Systematically design programs for broad audiences.	✓		✓	✓
<b>ICS-AP-09</b> Refine programs by incorporating feedback from users.	✓		✓	✓
<b>ICS-AP-10</b> Evaluate licenses that limit or restrict use of computational artifacts when using resources such as software libraries.				
<b>ICS-AP-11</b> Evaluate computational artifacts for usability.	✓	✓	✓	✓

<b>ICS-AP-12</b> Modify computational artifacts to increase usability and accessibility.	✓	✓	✓	✓
<b>ICS-AP-13</b> Develop computational artifacts working in team roles using collaborative tools.	✓	✓	✓	✓
<b>ICS-AP-14</b> Explain design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.	✓	✓	✓	✓
<b>ICS-IC-01</b> Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.	✓	✓	✓	
<b>ICS-IC-02</b> Elaborate how computational innovations have and may continue to impact society.				
<b>ICS-IC-03</b> Evaluate how equity, access, and influence impact distribution of computing resources in a global society.				
<b>ICS-IC-04</b> Test computational artifacts to reduce bias and equity deficits.	✓		✓	
<b>ICS-IC-05</b> Demonstrate ways a given algorithm applies to problems across disciplines.				
<b>ICS-IC-06</b> Utilize tools and methods for collaboration on a project to increase connectivity of peers.	✓		✓	✓
<b>ICS-IC-07</b> Explain the beneficial and harmful effects that intellectual property laws can have on innovation.				
<b>ICS-IC-08</b> Explain privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.				
<b>ICS-IC-09</b> Evaluate the social and economic implications of privacy in the context of safety, law, and ethics.	✓			