

K-12 Computer Science Benchmarks

Elementary K-5

K-5	
<i>Digital Readiness Strands</i>	<i>Upon completion of 5th grade, students will be able to...</i>
Foundational Concepts and Operations	<ul style="list-style-type: none"> ● Demonstrate proficiency in the use of devices including hardware, software, and connectivity. ● Edit and manipulate text with multiple application tools. ● Demonstrate keyboarding fluency and technique. ● Use keyboarding skills to complete tasks within reasonable time expectations.
Analytical and Innovative Thinking	<ul style="list-style-type: none"> ● Problem-solve and explore alternative solutions by using appropriate digital tools and resources. ● Identify and define problems by thinking critically.
Information Storage and Access	<ul style="list-style-type: none"> ● Store, access, organize, and use digital information (files). ● Identify, apply, and justify the use of appropriate digital tools and security measures.
Communication and Collaboration	<ul style="list-style-type: none"> ● Model the use of multiple platforms to collaborate and share thinking.
Digital Citizenship	<ul style="list-style-type: none"> ● Demonstrate the responsible use of age-appropriate technology. ● Identify ethical responsibilities for various age-appropriate platforms.
Coding and Computer Programming	<ul style="list-style-type: none"> ● Use analytical and innovative problem solving to develop fluency with implementing algorithms and loops with basic block coding. ● Discuss various careers and opportunities in computer science fields.

Middle School 6-8

6-8	
<i>Digital Readiness Strands</i>	<i>Upon completion of 8th grade, students will be able to...</i>
Foundational Concepts and Operations	<ul style="list-style-type: none"> ● Identify and describe the function of internal device components. ● Continue use of keyboarding skills to complete tasks within reasonable time expectations. ● Use application tools to edit, collaborate, and share learning over multiple digital platforms.
Analytical and Innovative Thinking	<ul style="list-style-type: none"> ● Implement a design process using multiple resources to problem solve, create, evaluate, and test for optimal solutions.
Information Storage and Access	<ul style="list-style-type: none"> ● Store, access, organize, and use information appropriately within a context. ● Synthesize and manage the use of appropriate tools and security measures.
Communication and Collaboration	<ul style="list-style-type: none"> ● Manage multiple tools to collaborate and solve problems.
Digital Citizenship	<ul style="list-style-type: none"> ● Advocate appropriate and responsible use of age-appropriate technology. ● Exhibit leadership by modeling ethical responsibility on various platforms.
Coding and Computer Programming	<ul style="list-style-type: none"> ● Employ a design process to critique and solve problems. ● Create and manipulate algorithms and loops using block coding. ● Analyze the functionality of networks. ● Identify various types of coding languages. ● Explore career options in the computer science fields.

High School 9-12

9-12	
<i>Digital Readiness Strands</i>	<i>Upon completion of 12th grade, students will be able to...</i>
Foundational Concepts and Operations	<ul style="list-style-type: none"> ● Research, compare and contrast, and identify the specifications of various devices for real-world applications. ● Implement acquired keyboarding skills to complete tasks and demonstrate career readiness.
Analytical and Innovative Thinking	<ul style="list-style-type: none"> ● Exercise the use of a design process to problem solve and formulate optimal solutions.
Information Storage and Access	<ul style="list-style-type: none"> ● Store, access, organize, and manipulate data. ● Manage and demonstrate the implementation of appropriate tools and security measures.
Communication and Collaboration	<ul style="list-style-type: none"> ● Select and manage appropriate digital tools through collaboration to solve problems.
Digital Citizenship	<ul style="list-style-type: none"> ● Advocate responsible and age-appropriate technology usage. ● Model ethical leadership on various platforms. ● Articulate the implications and consequences of using web-based applications. ● Understand the risks, challenges, and issues associated with personal and professional cybersecurity threats.
Coding and Computer Programming	<ul style="list-style-type: none"> ● Demonstrate proficiency of the course standards in computer science and coding pathways. ● Explore and research careers and opportunities in computer science fields.

Benchmarks adapted from [K-8 Digital Readiness Standards](#) and [CSTA K-12 Computer Science Standards](#).