



8th Grade Computer Science Standards Crosswalk

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CS Standard	Opportunities for Integration
CS 8.1 The student will construct programs to accomplish a task as a means of creative expression or scientific exploration using a block based or text based programming language, both independently and collaboratively. a. combining control structures such as if-statements and loops including nested conditionals and loops; b. using clearly named variables that represent different data types, including numeric and non-numeric data, and perform operations on their values; and c. create procedures with parameters.	English 8.2 Use block or text based programming to design a presentation and communicate ideas, a story summary, or thematic literary review English 8.3 Create a program as a media technique that aims to be informative, persuasive, or entertaining and identify characteristics and effectiveness of the messages WG.2, WG.3 Design a program that shows the shifting land occupied by Native Americans during Westward Expansion Math 8.CE.1 Solving multistep linear equations Math 8.1PFA.5 Solving inequalities PS.1 Build programs to develop models and conduct investigations to define relationships by adjusting variables in topics such as: PS.2 Model atoms, phases of matter, matter interactions PS.5 Model energy transfers PS.6 Model wave energy PS.7 Investigations of light, light waves PS.8 Model Newton's laws PS.9 Model transfer of electrons, model circuitry Art 8.1 Explain the steps behind student projects in a sequential manner Art 8.10 and 8.11 Use programming as a digital media to integrate cross-curricular connections between technology and visual art to solve problems Music 8.2 Work collaboratively to design a program that completes a specific musical task (genre, pitch, instrument, and/or time signature)
CS 8.2 The student will systematically test and refine programs using a range of test cases.	WG Use the programs in CS 8.1 to test, refine, debug programs for efficiency & content PS.1 Write programs that solve problems and conduct investigations by building models and debugging when errors occur with the following topics: PS.2 Model atoms, phases of matter, matter interactions PS.5 Model energy transfers PS.6 Model wave energy PS.7 Investigations of light, light waves PS.8 Model Newton's laws

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	PS.9 Model transfer of electrons, model circuitry Art 8.2 Use analytical evaluation of digital media creations, including programming, to find ways to more clearly communicate ideas and fix errors Music 8.3 Refine the program created with CS 8.1 to meet specific criterion and make it more efficient or productive
CS 8.3 The student will explain how effective communication between participants is required for successful collaboration when developing programs.	English 8.1 Work collaboratively as a group to design a project, with a timeline and distribution of tasks WG Use the programs in CS8.1 and have students work in pairs or small groups to understand how communication and collaboration is essential in program development PS.1 Communicate effectively about collaborative model creation or programs, and provide feedback to peers Art 8.5 Use communication and collaboration to design a plan, improve upon artwork, including digital media, and discuss visual art topics Music 8.5 Apply active listening when working collaboratively, especially in inter-disciplinary projects PE 8.4 Students work collaboratively in groups on a project and demonstrate communication skills and explain how teamwork contributed to the project
CS 8.4 The student will use flowcharts and/or pseudocode to address complex problems as algorithms.	English 8.7 Use prewriting strategies to create a systematic writing product Math 8.PFA.1 Simplifying algebraic expressions using a flowchart to map the order of operations WG.2, WG.3 Sort and analyze data about the regions of the United States to predict the natural resources, occupations, and important economic characteristics based on physical and environmental features Art 8.2 Use flowcharts or graphic organizers to plan out a complex project, including timeframes and research needed PS.1 Design investigations, developing models with flowcharts or pseudocode to break down a larger process or problem PS.3 Develop a plan to separate a mixture Health 8.1a Create a flowchart or graphic representation of the brain and nervous system Health 8.3e, 8.3f Use a flowchart to design an ad to help others evaluate food and beverage choices OR solutions to improve physical and mental health OR chronic health disorders OR eliminate drug use Music 8.2, 8.3 Plan and design a musical number with pseudocode to demarcate the time signature, melody, instruments, etc. PE 8.3 Create a flowchart to express a personal fitness and health plan

CS 8.5 The student will, using the elements of computing devices such as primary memory, secondary storage, processor, input and output devices, and network connectivity, analyze the advantages and limitations of a given computing system.	
CS 8.6 The student will evaluate physical and digital security measures used to protect electronic information.	Art 8.8 Discuss the ways that artists keep their digital art safer and ways that they could increase security (not allowing images to be saved, adding watermarks, NFTs) Music 8.8 Consider how music is protected when shared online and the implications to intellectual property when it is used without attribution (social media posts)
CS 8.7 The student will identify impacts of hacking, ransomware, scams, fake vulnerability scans, and the ethical and legal concerns involved. <i>Exclusion: Students do not need to implement solutions.</i>	English 8.7, 8.9 Research one of the cybersecurity concerns of hacking, ransomware, scams, fake vulnerability scans and create a campaign to warn other students and school staff
CS 8.8 The student will a. explain the difference between a model and a simulation; and b. create computational models to conduct simulations.	WG.12 Build a simulation of population rates during a specific time and place, noting the determining factors of it rising or falling WG.12, WG.15 Build a model of redlining practices in a local area and investigate current maps to see how it impacted opportunities in each district PS.1 Build and test models and simulations on the topics below: PS.2 Model atoms, phases of matter, matter interactions PS.3 Investigations of the properties of matter PS.5 Model energy transfers PS.6 Model wave energy PS.7 Investigations of light, light waves PS.8 Model Newton's laws PS.9 Model transfer of electrons, model circuitry Art 8.11 Build a model and run a simulation based on a content-area process or phenomenon, and incorporate design principles and/or customize the appearance of the simulated process or phenomenon
CS 8.9 The student will describe tradeoffs between allowing information to be public and keeping information private.	English 8.7, 8.9 Acknowledge that using the Internet to research has advantages, but also comes with concerns of information behind paywalls, fake sites and information, and consider what information should be public and what should be protected WG.2 Explore and explain how technology has allowed us to modify and adapt the environment and the trade off between using resources and protecting the environment PS.1 How has obtaining, evaluating and communicating information changed through

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	technology, and when are the results best kept private or shared publicly? Art 8.8 Consider how much artists should be willing to share their work widely versus having it restricted behind security measures. Music 8.8 Consider copyright and royalty free music, and how to determine what music should be public domain
CS 8.10 The student will evaluate online and print sources for appropriateness and credibility.	English 8.9 While researching, discuss how to tell which information is most credible and trustworthy and how to evaluate sites WG Skills.a, d, i Synthesizing many resources and evaluating their credibility PS.1 Evaluate information found in research for validity and credibility Health 8.3e Evaluate advertising for healthy food and beverage choices Health 8.3h, 8.3i, 8.3j When researching methods for drug and/or disease prevention, monitor the sites for credibility and accuracy
CS 8.11 The student will discuss the social impacts and ethical considerations associated with the field of cybersecurity.	Health 8.1l, 8.2l, 8.3l Examine and create a personal plan for online gaming and social media use Health 8.1m, 8.2m, 8.3m Research effects of social media and create a personal plan for usage
CS 8.12 The student will explore careers related to the field of cybersecurity.	English 8.7, 8.9 Investigate a career and research the pay, salary, degree/training requirements WG.16 Investigate the importance of cybersecurity in an increasingly connected world
CS 8.13 The student will identify existing cybersecurity concerns associated with Internet use and Internet-based systems and potential options to address these issues.	

