6-8 Grade Computer Science Correlation Guide
2022 Science Indiana Academic Standards to 2016 Indiana Academic Standards

Data & Information (DI)	
2022 Academic Standard	**2016 Academic Standard**
6-8.DI.1: Decompose (break down) problems into smaller, more manageable subsets by applying the algorithmic problem solving steps to make the possible solutions easier to follow, test, and debug.	**6-8.DI.1** Use the basic steps in algorithmic problem-solving to design solutions (e.g., problem statement and exploration, examination of sample instances, design, implementing a solution, testing, and evaluation). **6-8.DI.2** Describe the process of parallelization as it relates to problem solving.
6-8.DI.2: Collect data using computational tools (e.g., sensors, inputs like microphones) and transform the data to make it more useful and reliable.	**6-8.DI.5** Demonstrate interdisciplinary applications of computational thinking and interact with content-specific models and simulations to support learning and research.
6-8.DI.3: Examine the data represented by different program variables to ensure consistent format and remove errors.	**6-8.DI.4** Understand the notion of hierarchy and abstraction in computing including high-level languages, translation, instruction set, and logic circuits.
6-8.DI.4: Describe that data can be represented in multiple encoding schemes such as binary, RGB values, hexadecimal codes.	**6-8.DI.3** Represent data in a variety of ways (e.g., text, sounds, pictures, and numbers), and use different visual representations of problems, structures, and data (e.g., graphs, charts, network diagrams, flowcharts).
6-8.DI.5: Create visuals such as flowcharts, diagrams, pseudocode to represent complex problems as algorithms.	**6-8.DI.3** Represent data in a variety of ways (e.g., text, sounds, pictures, and numbers), and use different visual representations of problems, structures, and data (e.g., graphs, charts, network diagrams, flowcharts).
Computing Devices & Systems (CD)	
2022 Academic Standard	**2016 Academic Standard**
6-8.CD.1: Design projects that combine hardware and software components to collect and exchange data.	**6-8.CD.1** Demonstrate an understanding of the relationship between hardware and software.
6-8.CD.2: Systematically identify and fix problems (troubleshoot) with computing devices and their components (e.g. checklist, decision tree, flowchart).	**6-8.CD.2** Apply troubleshooting strategies to identify and solve routine hardware and software problems that occur during everyday computer use.
6-8.CD-3: Recommend improvements to the design of computing devices, based on analysis of how users interact with the devices.	

6-8.CD.4: Describe what distinguishes humans from machines focusing on ways we can communicate, as well as ways in which computers use models of intelligent behavior (e.g., robot motion, speech and language understanding, and computer vision).	**6-8.CD-4:** Describe what distinguishes humans from machines focusing on ways we can communicate, as well as ways in which computers use models of intelligent behavior (e.g., robot motion, speech and language understanding, and computer vision).
Programs & Algorithms (PA)	
2022 Academic Standards	**2016 Academic Standard**
6-8.PA.1: Demonstrate dispositions to open-ended problem solving within programming (e.g., persistence, brainstorming, creativity, debugging, iterating).	**6-8.PA.3** Demonstrate dispositions amenable to open-ended problem solving and programming (e.g., comfort with complexity, persistence, brainstorming, adaptability, patience, propensity to tinker, creativity, accepting challenge). **6-8.NC.2** Exhibit dispositions necessary for collaboration: providing useful feedback, integrating feedback, understanding and accepting perspectives, socialization.
6-8.PA.2: Modify, remix, or incorporate portions of an existing program into one's own work to develop something new or add more advanced features.	**6-8.PA.2** Implement problem solutions using a programming language that includes looping behavior, conditional statements, logic, expressions, variables, and functions.
6-8.PA.3: Design and iteratively develop programs that combine the following: sequencing, looping (including nested loops), conditionals (including compound conditionals), expressions, variables, functions, and parameters.	**6-8.PA.2** Implement problem solutions using a programming language that includes looping behavior, conditional statements, logic, expressions, variables, and functions.
6-8.PA.4: Systematically test and refine programs using a range of test cases.	**6-8.PA.2** Implement problem solutions using a programming language that includes looping behavior, conditional statements, logic, expressions, variables, and functions.
6-8.PA.5: Use the basic steps in the algorithmic problem-solving process to evaluate and revise solutions using a range of test cases.	**6-8.PA.2** Implement problem solutions using a programming language that includes looping behavior, conditional statements, logic, expressions, variables, and functions.
6-8.PA.6: Incorporate existing code, media, and libraries into original programs and give attribution.	**6-8.PA.2** Implement problem solutions using a programming language that includes looping behavior, conditional statements, logic, expressions, variables, and functions.
6-8.PA.7: Document programs in order to make them easier to follow, test, and debug.	**6-8.PA.2** Implement problem solutions using a programming language that includes looping behavior, conditional statements, logic, expressions, variables, and functions.
Networking & the Internet (NI)	
2022 Academic Standard	**2016 Academic Standard**
6-8.NI.1: Explain how physical and cybersecurity measures protect electronic information.	

6-8.NI.2: Model the role of protocols in transmitting data across networks and the internet.	**6-8.CD.3** Describe the major components and functions of computer systems and networks.
6-8.NI.3: Apply multiple methods of encryption to model the secure transmission of information.	
Impact & Culture (IC)	
2022 Academic Standard	**2016 Academic Standard**
6-8.IC.1: Exhibit legal and ethical behaviors when using technology and information and discuss the consequences of misuse.	**6-8.IC.1:** Exhibit legal and ethical behaviors when using technology and information and discuss the consequences of misuse.
6-8.IC.2: Discuss issues of bias and accessibility in the design of existing technologies.	**6-8.IC.3** Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.
6-8.IC.3: Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	**6-8.NC.1** Collaboratively design, develop, publish, and present products (e.g., videos, podcasts, websites) using technology resources that demonstrate and communicate curriculum content.
6-8.IC.4: Describe tradeoffs between allowing information to be public and keeping information private and secure.	**6-8.IC.2** Analyze the positive and negative impacts of technology on one's personal life, society, and culture.
6-8.IC.5: Discuss how unequal distribution and participation in technology and computer science disadvantages marginalized populations resulting in issues of equity, access, power, and exclusion.	**6-8.IC.4** Describe ethical issues that relate to computers and networks (e.g., security, privacy, ownership, and information sharing), and discuss how unequal distribution of technological resources in a global economy raises issues of equity, access, and power.
Digital Literacy (DL)	
2022 Academic Standard	**2016 Academic Standard**
6-8.DL.1: Select appropriate tools and technology resources to support learning and personal productivity, publish individual products, and design, develop, and publish data, accomplish a variety of tasks, and solve problems.	**6-8.PA.1** Select appropriate tools and technology resources to support learning and personal productivity, publish individual products, and design, develop, and publish data, accomplish a variety of tasks, and solve problems.
6-8.DL.2: Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	**6-8.PA.1** Select appropriate tools and technology resources to support learning and personal productivity, publish individual products, and design, develop, and publish data, accomplish a variety of tasks, and solve problems.
6-8.DL.3: Demonstrate an understanding of the relationship between hardware and software.	**6-8.CD.2** Apply troubleshooting strategies to identify and solve routine hardware and software problems that occur during everyday computer use.