

Grades 6-8

Computing Systems

- 1 Devices: Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.** 6-8.CS.01
- 2 Hardware and Software: Design projects that combine hardware and software components to collect and exchange data.** 6-8.CS.02
- 3 Troubleshooting: Systematically identify and fix problems with computing devices and their components.** 6-8.CS.03

Networks and the Internet

- 4 Network Communication and Organization: Model the role of protocols in transmitting data across networks and the internet.** 6-8.NI.04
- 5 Cybersecurity: Explain how physical and digital security measures protect electronic information** 6-8.NI.05
- 6 Cybersecurity: Apply multiple methods of encryption to model the secure transmission of information** 6-8.NI.06

Data and Analysis

- 7 Storage: Represent data using multiple encoding schemes.** 6-8.DA.07
- 8 Collection Visualization and Transformation: Collect data using computational tools and transform the data to make it more useful and reliable.** 6-8.DA.08
- 9 Interference and Models: Refine computational models based on the data they have generated.** 6-8.DA.09
- 10 Interference and Models: Evaluate the misuse of data and impact of distorted outcomes.** 6-8.DA.10

Algorithms and Programming

- 11 Algorithms: Use flowcharts or pseudocode to address complex problems as algorithms** 6-8.AP.11
- 12 Variables: Perform operations on student-created variables that possess descriptive names and represent different data types.** 6-8.AP.12
- 13 Control: Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.** 6-8.AP.13
- 14 Modularity: Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.** 6-8.AP.14

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- 15 Modularity: Create procedures with parameters to organize code and make it easier to reuse.** 6-8.AP.15
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- 16 Program Development: Seek and incorporate feedback from team members and users to refine a solution that meets user needs.** 6-8.AP.16
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- 17 Program Development: Incorporate existing code, media, and libraries into original programs and give attribution.** 6-8.AP.17
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- 18 Program Development: Systematically test and refine programs using a range of test cases.** 6-8.AP.18
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- 19 Program Development: Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.** 6-8.AP.19
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- 20 Program Development: Document programs to make them easier to follow, test, and debug.** 6-8.AP.20
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Impacts of Computing

- 21 Culture: Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.** 6-8.IC.21
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- 22 Culture: Discuss issues of bias and accessibility in the design of existing technologies.** 6-8.IC.22
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- 23 Social Interactions: Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.** 6-8.IC.23
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- 24 Safety Law and Ethics: Describe tradeoffs between allowing information to be public and keeping information private and secure.** 6-8.IC.24
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Emerging and Future Technologies

- A Explain that the field of emerging technologies will be evolving and rapidly growing** 6-8.ET.A
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- B Compare existing and emerging technologies, ideas, and concepts.** 6-8.ET.B
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- C Describe how emerging technologies are influencing current events at a local and global scale.** 6-8.ET.C
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- D Predict the positive and negative societal, cultural, and economic impacts that emerging and future technologies may generate.** 6-8.ET.D
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- E Create new or original work by applying emerging technologies** 6-8.ET.E
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