

By the End of the 8th Grade

Computing Systems

Devices

- 1 Evaluate the design of computing devices, based on the characteristics of each device and how users interact with it, to improve the overall user experience. [6-8.CS.D.01](#)
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Hardware & Software

- 1 Design projects that combine hardware and software to collect and exchange data. [6-8.CS.HS.01](#)
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Troubleshooting

- 1 Develop a systematic troubleshooting routine to identify the problem, research solutions and fix problems with computing devices, components and software. [6-8.CS.T.01](#)
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Networks & the Internet

Network Communication & Organization

- 1 Model the different ways that data is transferred across a network and the protocols used to transmit the data. [6-8.NI.NCO.01](#)
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Cybersecurity

- 1 Recognize and determine computer threats and be able to identify programs and methods to protect electronic information. [6-8.NI.C.01](#)
 - 2 Demonstrate how data is transmitted through multiple methods of encryption. [6-8.NI.C.02](#)
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Data & Analysis

Storage

- 1 Represent data using multiple encoding schemes. [6-8.DA.S.01](#)
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Collection, Visualization & Transformation

- 1 Collect data using computational tools and display it for the end user in an easy to understand way. [6-8.DA.CVT.01](#)
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Inference & Models

- 1 Analyze methods to refine computational models based on received data. [6-8.DA.IM.01](#)
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Algorithms & Programming

Algorithms

- 1 Design algorithms with flow charts and/or pseudocode to show solutions to complex problems. [6-8.AP.A.01](#)
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Variables

- 1 Create clearly named variables to store and manipulate information. [6-8.AP.V.01](#)
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Control

- 1 Design and develop combinations of control structures, nested loops and compound conditionals. [6-8.AP.C.01](#)
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Modularity

- 1 Decompose problems and subproblems into parts to facilitate the design, implementation and review of programs. [6-8.AP.M.01](#)
 - 2 Create procedures with parameters to organize code and to make it easier to reuse. [6-8.AP.M.02](#)
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Program Development

- 1 Use flowcharts and/or pseudocode to solve problems using algorithms. [6-8.AP.PD.01](#)
 - 2 Use feedback from team members and users to refine solutions to meet user needs. [6-8.AP.PD.02](#)
 - 3 Give proper attribution to code, media, etc. that is used in their programs. [6-8.AP.PD.03](#)
 - 4 Test and refine programs using a range of test cases. [6-8.AP.PD.04](#)
 - 5 Manage project tasks and timelines when collaboratively developing computational artifacts. [6-8.AP.PD.05](#)
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Impacts of Computing

Culture

- 1 Compare tradeoffs associated with computing technologies that have impacted people's activities, careers and lives when solving global problems using the power of computing [6-8.IC.C.01](#)
 - 2 Discuss issues of bias and accessibility in the design of existing technologies. [6-8.IC.C.02](#)
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Social Interactions

- 1 Collaborate through strategies such as crowdsourcing or surveys when creating a computational artifact. [6-8.IC.SI.01](#)

Safety, Law & Ethics

- 1 Describe tradeoffs between allowing information to be public and keeping information private and secure. [6-8.IC.SLE.01](#)
- 2 Continue to discuss and understand the implications of positive and negative digital footprints and that they never go away. [6-8.IC.SLE.02](#)