

# Grades 7-8

## Impacts of Computing IC

### Society

- 1 Compare and contrast tradeoffs associated with computing technologies that affect individuals and society. [7-8.IC.1](#)
  - 2 Evaluate the impact of laws or regulations on the development and use of computing technologies and digital information. [7-8.IC.2](#)
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### Ethics

- 3 Identify and discuss issues of ethics surrounding computing technologies and current events. [7-8.IC.3](#)
  - 4 Identify and discuss issues related to the collection and use of public and private data. [7-8.IC.4](#)
  - 5 Analyze potential sources of bias that could be introduced to complex computer systems and the potential impact of these biases on individuals. [7-8.IC.5](#)
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### Accessibility

- 6 Assess the accessibility of a computing device or software application in terms of user needs. [7-8.IC.6](#)
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### Career Paths

- 7 Explore a range of computer sciencerelated career paths. [7-8.IC.7](#)
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## Computational Thinking CT

### Modeling and Simulation

- 1 Compare the results of alternative models or simulations to determine and evaluate how the input data and assumptions change the results. [7-8.CT.1](#)
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### Data Analysis and Visualization

- 2 Collect and use digital data in a computational artifact. [7-8.CT.2](#)
  - 3 Refine and visualize a data set in order to persuade an audience. [7-8.CT.3](#)
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### Abstraction and Decomposition

- 4 Write a program using functions or procedures whose names or other documentation convey their purpose within the larger task. [7-8.CT.4](#)
- 5 Identify multiple similar concrete computations in a program, then create a function to generalize over them using parameters to accommodate their differences [7-8.CT.5](#)

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## Algorithms and Programming

- 6 Design, compare and refine algorithms for a specific task or within a program. 7-8.CT.6
  - 7 Design or remix a program that uses a variable to maintain the current value of a key piece of information. 7-8.CT.7
  - 8 Develop or remix a program that effectively combines one or more control structures for creative expression or to solve a problem. 7-8.CT.8
  - 9 Read and interpret code to predict the outcome of various programs that involve conditionals and repetition for the purposes of debugging. 7-8.CT.9
  - 10 Document the iterative design process of developing a computational artifact that incorporates user feedback and preferences. 7-8.CT.10
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## Networks and Systems Design

### Hardware and Software

- 1 Design a user interface for a computing technology that considers usability, accessibility, and desirability. 7-8.NSD.1
  - 2 Design a project that combines hardware and software components. 7-8.NSD.2
  - 3 Identify and fix problems with computing devices and their components using a systematic troubleshooting method or guide. 7-8.NSD.3
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### Networks and the Internet

- 4 Design a protocol for transmitting data through a multi-point network. 7-8.NSD.4
  - 5 Summarize how remote data is stored and accessed in a network. 7-8.NSD.5
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## Cybersecurity

### Risks

- 1 Determine the types of personal information and digital resources that an individual may have access to that needs to be protected 7-8.CY.1
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### Safeguards

- 2 Describe physical, digital, and behavioral safeguards that can be employed in different situations. 7-8.CY.2
  - 3 Describe trade-offs of implementing specific security safeguards. 7-8.CY.3
  - 4 Describe the limitations of cryptographic methods. 7-8.CY.4
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### Response

- 5 Describe actions to be taken before and after an application or device reports a security problem or performs unexpectedly. 7-8.CY.5
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## Digital Literacy

### Digital Use

- 1 Type on a keyboard while demonstrating proper keyboarding technique, with increased speed and accuracy. 7-8.DL.1
  - 2 Communicate and collaborate with others using a variety of digital tools to create and revise a collaborative product. 7-8.DL.2
  - 3 Compare types of search tools, choose a search tool for effectiveness and efficiency, and evaluate the quality of search tools based on returned results. 7-8.DL.3
  - 4 Select and use digital tools to create, revise, and publish digital artifacts. 7-8.DL.4
  - 5 Transfer knowledge of technology in order to explore new technologies. 7-8.DL.5
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### Digital Citizenship

- 6 Explain the connection between the persistence of data on the Internet, personal online identity, and personal privacy. 7-8.DL.6
- 7 Describe safe, appropriate, positive, and responsible online behavior and identify strategies to combat negative online behavior. 7-8.DL.7