New York Computer Science & Digital Fluency

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

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

Accessibility

6 Assess the accessibility of a computing device or software application in terms of user needs. 7-8.IC.6

Career Paths

7 Explore a range of computer sciencerelated career paths. 7-8.IC.7

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

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

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

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

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

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

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

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

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

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

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