

# Grade 6

Adopted 2017

## Algorithms and Programming

- 1. The student will construct programs to accomplish a task as a means of creative expression or scientific exploration using a block based or text based programming language, both independently and collaboratively, 6.1**
  - a. combining control structures such as if-statements and loops; and 6.1.A
  - b. creating clearly named variables that represent different data types, including numeric and non-numeric data, and perform operations on their values. 6.1.B
- 2. The student will trace programs to predict outcomes and debug (correct and improve) for correctness. 6.2**
- 3. The student will seek and incorporate feedback from team members and users to refine a program that meets user needs. 6.3**
- 4. The student will incorporate existing code, media, and libraries into original programs, and give attribution. 6.4**

## Computing Systems

- 5. The student will design projects that combine hardware and software components to collect and exchange data. 6.5**

## Cybersecurity

- 6. The student will identify physical and digital security measures used protect electronic information. 6.6**

## Data and Analysis

- 7. The student will explain how binary sequences are used to represent digital data. Exclusion: Conversions between binary and base-ten numbers are beyond the scope of these standards. 6.7**
- 8. The student will collect data using computational tools then clean and organize to make it more useful and reliable. 6.8**
- 9. The student will explain the insight and knowledge gained from digitally processed data by using appropriate visualizations. 6.9**
- 10. The student will use models and simulations to formulate, refine, and test hypotheses. 6.10**

## Impacts of Computing

- 11. The student will explain how computing has impacted innovations in other fields. 6.11**

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**12. The student will explore careers related to data.** 6.12

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**Networking and the Internet**

**13. The student will explain why the speed of data transmission across the Internet can vary depending on the type of data being transmitted.** 6.13