Virginia Computer Science

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

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