

# Seventh Grade

## Computing Systems 7.CS

### D. Devices 7.CS.D

- 1 Evaluate existing computing devices and recommend improvements to the design based on how other users interact with the device. 7.CS.D.01
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### HS. Hardware & Software 7.CS.HS

- 1 Evaluate and recommend improvements to software and hardware combinations used to collect and exchange data. 7.CS.HS.01
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### T. Troubleshooting 7.CS.T

- 1 Identify and resolve complex software and hardware problems with computing devices and their components utilizing strategies such as developing and analyzing flow diagrams. 7.CS.T.01
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## Networks & The Internet 7.NI

### NCO. Network Communication & Organization 7.NI.NCO

- 1 Explain protocols and their importance to data transmission; model how a system responds when a packet is lost and the effect it has on the transferred information. 7.NI.NCO.01
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### CY. Cybersecurity 7.NI.CY

- 1 Explain how to protect electronic information, both physical (e.g., hard drive) and digital; identify cybersecurity concerns and options to address issues with the Internet and the systems it uses. 7.NI.CY.01
  - 2 Identify and explain methods of encryption used to ensure and secure the transmission of information. 7.NI.CY.02
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## Data Analysis 7.DA

### S. Storage 7.DA.S

- 1 Create and compare multiple representations of the same data. 7.DA.S.01
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### CVT. Collection, Visualization, & Transformation 7.DA.CVT

- 1 Collect data using computational tools and transform the data to make it more useful and reliable. 7.DA.CVT.01
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### IM. Inference & Models 7.DA.IM

- 1 Discuss the accuracy of a model representing a system by comparing the model's generated results with observed data from the modeled system. 7.DA.IM.01
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## Algorithms & Programming 7.AP

### A. Algorithms 7.AP.A

- 1 Select and modify an existing algorithm in natural language or pseudocode to solve complex problems. 7.AP.A.01
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### V. Variables 7.AP.V

Students will continue to apply the standards and practices from the previous grade levels.

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### C. Control 7.AP.C

- 1 Develop programs that utilize combinations of repetition, compound conditionals, and the manipulation of variables representing different data types. 7.AP.C.01
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### M. Modularity 7.AP.M

- 1 Decompose problems into parts to facilitate the design, implementation, and review of increasingly complex programs. 7.AP.M.01
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### PD. Program Development 7.AP.PD

- 1 Seek and incorporate feedback from team members and users to refine a solution to a problem. 7.AP.PD.01
  - 2 Incorporate existing code, media, and libraries into original programs of increasing complexity and give attribution. 7.AP.PD.02
  - 3 Test and refine programs using a variety of student created inputs. 7.AP.PD.03
  - 4 Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts. 7.AP.PD.04
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## Impacts of Computing 7.IC

### CU. Culture 7.IC.CU

- 1 Describe the trade-offs associated with computing technologies (e.g., automation), explaining their effects on economies and society.. 7.IC.CU.01
  - 2 Identify real-world problems in relation to the distribution of computing resources in society. 7.IC.CU.02
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### SI. Social Interactions 7.IC.SI

- 1 Describe and use safe, appropriate, and responsible practices (i.e., netiquette) when participating in online communities and evaluate how technology can be used to distort, exaggerate, and misrepresent information. 7.IC.SI.01
  - 2 Individually and collaboratively use advanced tools to design and create online content (e.g., digital portfolio, multimedia, blog, web page). 7.IC.SI.02
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### SLE. Internet Safety, Law, & Ethics 7.IC.SLE

- 1 Model the connection between the longevity of data on the Internet, personal online identity, and personal privacy. 7.IC.SLE.01