

# Grade 5

## Computing Systems CS

### D. Devices D

- 1 Model and communicate how computing devices can be connected to other devices to extend their capabilities. 5.CS.D.01
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### HS. Hardware and Software HS

- 1 Illustrate how information is translated into binary numbers between software and hardware. 5.CS.HS.01
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### IO. Input and Output IO

- 1 Demonstrate proper use of grade level appropriate input devices and produce digital artifacts selective publication based on audience/purpose. 5.CS.IO.01
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### T. Troubleshooting T

- 1 Using accurate terminology, identify simple hardware and software problems that may occur during everyday use. 5.CS.T.01
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## Networks & the Internet NI

### NCO. Network Communication & Organization NCO

- 1 Model how information is broken down into smaller pieces and transmitted through multiple devices over networks and the internet, and how these pieces are assembled at the destination. 5.NI.NCO.01
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### C. Cybersecurity C

- 1 Discuss real-world cybersecurity problems and identify strategies for how personal information can be protected. 5.NI.C.01
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## Data Analysis DA

### S. Storage S

- 1 Evaluate trade-offs of file types, storage requirements, and sharing requirements, including comparisons of availability and quality. 5.DA.S.01
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### C. Collection C

- 1 Select the appropriate tool to collect relevant and reliable data that solves a problem. 5.DA.C.01
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### CVT. Visualization & Transformation CVT

- 1 Organize and present collected data to highlight comparisons and support a claim. 5.DA.CVT.01

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**IM. Inference and Models** IM

- 1 Use data to discover or propose cause and effect relationships, predict outcomes, or communicate an idea. 5.DA.IM.01
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**Algorithms and Programming** AP**A. Algorithms** A

- 1 Analyze and refine multiple algorithms for the same task and determine which algorithm is the most efficient. 5.AP.A.01
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**V. Variables** V

- 1 Utilize, create, and modify programs that use, modify, and combine variables with grade level appropriate data. 5.AP.V.01
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**C. Control** C

- 1 Create programs using a programming language that utilize sequencing, repetition, conditionals, event handlers, and variables to solve a problem or express ideas both independently and collaboratively. 5.AP.C.01
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**M. Modularity** M

- 1 Decompose (break down) large problems into smaller, more manageable subproblems to facilitate the program development process. 5.AP.M.01
  - 2 With grade appropriate complexity, modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. 5.AP.M.02
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**PD. Program Development** PD

- 1 Create a plan using an iterative process for the development of a program that includes others' perspectives and user preferences while solving simple problems. 5.AP.PD.01
  - 2 Use proper citations and document when ideas are borrowed and changed for their own use (e.g., using pictures created by others, using music created by others, remixing programming projects). 5.AP.PD.02
  - 3 Analyze, debug (identify/fix errors), and create a program that includes sequencing, repetition and variables in a programming language. 5.AP.PD.03
  - 4 Take on varying roles collaborating with peers to give feedback at different stages of program development, including design and implementation. 5.AP.PD.04
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**Impacts of Computing** IC**C. Culture** C

- 1 Develop, test, and refine digital artifacts to improve accessibility and usability for a computing device or program. 5.IC.C.01

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**SI. Social Interactions** SI

- 1 Develop a code of conduct, explain, and practice grade-level appropriate behavior and responsibilities while participating in an online community. Identify and report inappropriate behavior. (Digital Citizenship - review of all nine components, but focused on Digital Commerce, Digital Law, and Digital Security. 5.IC.SI.01
- 2 As a team, collaborate with people and resources outside of your normal space to include diverse perspectives to improve computational products. 5.IC.SI.02

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**H. History** H

- 1 Identify and explain the evolution of computing technologies that have changed the world. 5.IC.H.01

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**SLE. Safety, Law, & Ethics** SLE

- 1 Observe intellectual property rights and give appropriate credit when using resources. 5.IC.SLE.01

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**CP. Community Partnerships** CP

- 1 Design a visual product depicting the connections between computer science and other fields. 5.IC.CP.01