

Level 1B: Upper Elementary (Grades 3-5)

Computing Systems

- 1 Describe how internal and external parts of computing devices function to form a system. [1B-CS-01](#)
- 2 Model how computer hardware and software work together as a system to accomplish tasks [1B-CS-02](#)
- 3 Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. [1B-CS-03](#)

Networks & the Internet

- 4 Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination. [1B-NI-04](#)
- 5 Discuss real-world cybersecurity problems and how personal information can be protected. [1B-NI-05](#)

Data & Analysis

- 6 Organize and present collected data visually to highlight relationships and support a claim. [1B-DA-06](#)
- 7 Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea. [1B-DA-07](#)

Algorithms & Programming

- 8 Compare and refine multiple algorithms for the same task and determine which is the most appropriate. [1B-AP-08](#)
- 9 Create programs that use variables to store and modify data. [1B-AP-09](#)
- 10 Create programs that include sequences, events, loops, and conditionals. [1B-AP-10](#)
- 11 Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. [1B-AP-11](#)
- 12 Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. [1B-AP-12](#)

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- 13** Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. **1B-AP-13**
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- 14** Observe intellectual property rights and give appropriate attribution when creating or remixing programs. **1B-AP-14**
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- 15** Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended. **1B-AP-15**
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- 16** Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. **1B-AP-16**
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- 17** Describe choices made during program development using code comments, presentations, and demonstrations. **1B-AP-17**
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Impacts of Computing

- 18** Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices. **1B-IC-18**
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- 19** Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. **1B-IC-19**
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- 20** Seek diverse perspectives for the purpose of improving computational artifacts **1B-IC-20**
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- 21** Use public domain or creative commons media, and refrain from copying or using material created by others without permission. **1B-IC-21**