

# Grade 3

## Computational Thinker

### Abstraction

- 1 Use numbers or letters to represent information in another form. Examples: Secret codes/encryption, Roman numerals, or abbreviations. [3.1](#)
  - 2 Analyze a given list of sub-problems while addressing a larger problem. Example: Problem - making a peanut butter sandwich; sub-problem - opening jar, finding a knife, getting the bread. Problem - design and share a brochure; sub-problem - selecting font, choosing layout. [3.2](#)
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### Algorithms

- 3 Explain that different solutions exist for the same problem or sub-problem. Example: Multiple paths exist to get home from school; one may be a shorter distance while one may encounter less traffic. [3.3](#)
  - 4 Examine logical reasoning to predict outcomes of an algorithm. [3.4](#)
  - 5 Create an algorithm to solve a problem as a collaborative team. Examples: Move a character/robot/person through a maze. List steps to build a sandwich. [3.5](#)
  - 6 Describe the function of a flowchart. [3.6](#)
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### Programming and Development

- 7 Test and debug a given program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs, in collaboration with others. Examples: Sequencing cards for unplugged activities, online coding practice. [3.7](#)
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## Citizen of a Digital Culture

### Safety, Privacy, and Security

- 8 Describe how to use proper ergonomics when using devices. Examples: Body position, lighting, positioning of equipment, taking breaks. [3.8](#)
- 9 Identify the proper use and operation of security technologies. Examples: Passwords, virus protection software, spam filters, pop-up blockers. [3.9](#)
- 10 Describe ways web advertising collects personal information. Examples: Search ads,   
b [3.10](#)

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## Impact of Computing

- 11 Identify resources in the community that offer technology access. Examples: Libraries, community centers, restaurants, education programs, schools, or hardware/software donation programs. 3.11
  - 12 Identify and discuss ways that access to technology helps empower individuals and groups. Examples: Gives access to information; provides the ability to communicate with others around the world; enables people to buy and sell things. 3.12
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## Global Collaborator

### Communication

- 13 Communicate key ideas and details collaboratively in a way that informs, persuades, and/or entertains, using digital tools. Example: Create a digital presentation to persuade school administrators to allow additional time for lunch. 3.13
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### Digital Tools

- 14 Type 15 words per minute with 95% accuracy using appropriate keyboarding techniques. 3.14
  - 15 Describe local, networked, and online or cloud environments. 3.15
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### Collaborative Research

- 16 Conduct basic keyword searches to produce valid, appropriate results, and evaluate results for accuracy, relevance, and appropriateness. Examples: Use search techniques, check for credibility and validity. 3.16
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## Computing Analyst

### Data

- 17 Describe examples of data sets or databases from everyday life. Examples: Library catalogs, school records, telephone directories, or contact lists. 3.17
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### Systems

- 18 Identify a broad range of digital devices, the services they provide, and appropriate uses for them. Examples: Computers, smartphones, tablets, robots, e-textiles, driving directions apps that access remote map services, digital personal assistants that access remote information services. 3.18
  - 19 Describe the differences between hardware and software. 3.19
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## Innovative Designer

### Human/Computer Partnerships

- 20 Compare and contrast human and computer performance on similar tasks to understand which is better suited to the task. Examples: Sorting alphabetically, finding a path across a cluttered room. 3.20
- 21 Explain advantages and limitations of technology. Example: A spell-checker can check thousands of words faster than a human could look them up; however, a spell-checker might not know whether underserved is correct or if the author's intent was to type undeserved. 3.21

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## Design Thinking

- 22 Discuss the design process and use digital tools to illustrate potential solutions. 3.22
- 23 Implement the design process to solve a simple problem. Examples: Uneven table leg, noise in the cafeteria, tallying the collection of food drive donations. 3.23