

# Grade 5

## Computational Thinker

### Abstraction

- 1 Construct a complex system of numbers or letters to represent information.  
Example: Student-created complex secret codes using more than one form to solve a problem or answer a question. [5.1](#)
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### Algorithms

- 2 Create an algorithm to solve a problem while detecting and debugging logical errors within the algorithm. Examples: Program the movement of a character, robot, or person through a maze. Define a variable that can be changed or updated. [5.2](#)
  - 3 Create an algorithm that is defined by simple pseudocode. [5.3](#)
  - 4 Create a simple pseudocode. [5.4](#)
  - 5 Develop and recommend solutions to a given problem and explain the process to an audience. [5.5](#)
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### Programming and Development

- 6 Create a working program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs. [5.6](#)
  - 7 Identify variables. [5.7](#)
  - 8 Demonstrate that programs require known starting values that may need to be updated appropriately during the execution of programs. Examples: Set initial value of a variable, updating variables. [5.8](#)
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## Citizen of a Digital Culture

### Safety, Privacy, and Security

- 9 Explain the proper use and operation of security technologies. Examples: Passwords, virus protection software, spam filters, pop-up blockers, cookies. [5.9](#)
  - 10 Identify appropriate and inappropriate uses of communication technology and discuss the permanence of actions in the digital world. [5.10](#)
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### Legal and Ethical Behavior

- 11 Explain that laws and tools exist to help ensure that people of varying abilities can access electronic and information technology. Examples: Section 508, Telecommunication Act of 1996, Braille, closed captioning, text to speech. [5.11](#)

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### **Digital Identity**

- 12 Explain the different forms of web advertising and why websites, digital resources, and artifacts may include advertisements that may collect personal information. Examples: personalized web experiences based on tailored web searches, maintaining search history, quicker access to relevant information. 5.12
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### **Impact of Computing**

- 13 Share knowledge of resources in the community that can give people access to technology. Example: student created print and/or digital resource to share WiFi or other connectivity opportunities within the community. 5.13
- 14 Analyze the impact of social media on individuals, families, and society. 5.14
- 15 Explore and predict how advances in computing technologies affect job opportunities and/or processes now and in the future. 5.15
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## **Global Collaborator**

### **Communication**

- 16 Use advanced features of digital tools and media-rich resources to communicate key ideas and details in a way that informs, persuades, and/or entertains. 5.16
- 17 Publish organized information in different ways to make it more useful or relevant. Examples: Infographic, student created website. 5.17
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### **Digital Tools**

- 18 Type 25 words per minute with 95% accuracy using appropriate keyboarding techniques. 5.18
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### **Collaborative Research**

- 19 Conduct advanced keyword searches to produce valid, appropriate results and evaluate results for accuracy, relevance, and appropriateness. Examples: Search techniques, check for credibility and validity. 5.19
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### **Social Interactions**

- 20 Collaborate locally and globally using online digital tools under teacher supervision. 5.20
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## **Computing Analyst**

### **Data**

- 21 Manipulate data to answer a question using a variety of computing methods and tools to collect, organize, graph, analyze, and publish the resulting information. 5.21

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## Systems

- 22 Identify computing services that may be initially turned on by default. Examples: Geolocations, geotagging. 5.22
  - 23 Identify the key components of a network. Examples: Links, nodes, networking devices. 5.23
  - 24 Describe the need for authentication of users and devices as it relates to access permissions, privacy, and security. Examples: Logging in at school, logging personal devices to public networks. 5.24
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## Modeling and Simulations

- 25 Analyze the concepts, features, and behaviors illustrated by a simulation. Examples: Object motion, weather, ecosystem, predator/prey. 5.25
  - 26 Connect data from a simulation to real-life events. 5.26
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## Innovative Designer

### Human/Computer Partnerships

- 27 Define social engineering and discuss possible defenses. Examples: Phishing, impersonating 5.27
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### Design Thinking

- 28 Develop, test, and refine prototypes as part of a cyclical design process to solve a complex problem. Examples: Design backpack for a specific user's needs; design a method to collect and transport water without the benefit of faucets; design boats that need to hold as much payload as possible before sinking; design models of chairs based on specific user needs. 5.28