

Grade 7

Computational Thinker

Abstraction

- 1 Create a function to simplify a task. Example: Getting a writing utensil, getting paper, jotting notes can collectively be named “note taking”. [7.1](#)

Algorithms

- 2 Create complex pseudocode using conditionals and Boolean statements. Example: Automated vacuum pseudocode – drive forward until the unit encounters an obstacle; reverse 2”; rotate 30 degrees to the left, repeat. [7.2](#)
- 3 Create algorithms that demonstrate sequencing, selection or iteration. Examples: Debit card transactions are approved until the account balance is insufficient to fund the transaction = iteration, do until. [7.3](#)
- 4 Design a complex algorithm that contains sequencing, selection or iteration. Examples: Lunch line algorithm that contains parameters for bringing your lunch and multiple options available in the lunch line. [7.4](#)

Programming and Development

- 5 Solve a complex problem using computational thinking. [7.5](#)
- 6 Create and organize algorithms in order to automate a process efficiently. Example: Set of recipes (algorithms) for preparing a complete meal. [7.6](#)
- 7 Create a program that updates the value of a variable in the program. Examples: Update the value of score when a coin is collected (in a flowchart, pseudocode or program). [7.7](#)
- 8 Formulate a narrative for each step of a process and its intended result, given pseudocode or code. [7.8](#)

Citizen of a Digital Culture

Safety, Privacy, and Security

- 9 Identify common methods of securing data. Examples: Permissions, encryption, vault, locked closet. [7.9](#)

Legal and Ethical Behavior

- 10 Explain social engineering, including countermeasures, and its impact on a digital society. Examples: Phishing, hoaxes, impersonation, baiting, spoofing. [7.10](#)
- 11 Demonstrate positive, safe, legal, and ethical habits when creating and sharing digital content and identify the consequences of failing to act responsibly. [7.11](#)

Digital Identity

- 12 Discuss the impact of data permanence on digital identity including best practices to protect personal digital footprint. 7.12
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Impact of Computing

- 13 Compare and contrast information available locally and globally. Example: Review an article published in the United States and compare to an article on the same subject published in China. 7.13
- 14 Discuss current events related to emerging technologies in computing and the effects such events have on individuals and the global society. 7.14
- 15 Discuss unique perspectives and needs of a global culture when developing computational artifacts, including options for accessibility for all users. Example: Would students create a webpage aimed at reaching a village of users that have no access to the Internet? 7.15
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Global Collaborator

Creative Communications

- 16 Construct content designed for specific audiences through an appropriate medium. Examples: Design a multi-media children's e-book with an appropriate readability level. 7.16
- 17 Publish content to be available for external feedback. 7.17
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Digital Tools

- 18 Type 35 words per minute with 95% accuracy using appropriate keyboarding techniques. 7.18
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Social Interactions

- 19 Discuss the benefits and limitations of censorship. 7.19
- 20 Evaluate the validity and accuracy of a data set. 7.20
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Computing Analyst

Data

- 21 Compare common transfer protocols. Examples: FTP, HTTP 7.21
- 22 Compare data storage structures. Examples: Stack, array, queue, table, database. 7.22
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Systems

- 23 Demonstrate the use of a variety of digital devices individually and collaboratively to collect, analyze, and present information for content-related problems. 7.23
- 24 Diagram a network given a specific setup or need. Examples: Home network, public network, business network. 7.24
- 25 List common methods of system cybersecurity. Examples: Various password requirements, two factor authentication, biometric, geolocation. 7.25
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Modeling and Simulation

- 26 Categorize models based on the most appropriate representation of various systems. 7.26
 - 27 Identify data needed to create a model or simulation of a given event Examples: When creating a random name generator, the program needs access to a list of possible names. 7.27
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Innovative Designer

Human/Computer Partnerships

- 28 Classify types of assistive technologies. Examples: Hardware, software, stylus, sticky keys. 7.28
 - 29 Compare and contrast human intelligence and artificial intelligence. 7.29
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Design Thinking

- 30 Apply the problem-solving process to solve real-world problems. 7.30