Alabama Digital Literacy and Computer Science

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

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

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

Digital Tools

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

Social Interactions

19 Discuss the benefits and limitations of censorship. 7.19

20 Evaluate the validity and accuracy of a data set. 7.20

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

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

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

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

Design Thinking

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