

CompuScholar, Inc.

Alignment to Alabama Digital Literacy and Computer Science Standards

8th Grade

Alabama Course Details:

Course Title:	Digital Literacy and Computer Science
Grade Level:	8th Grade
Standards Link:	2018 Textbook Draft DL and CS COS.pdf

CompuScholar Course Details:

Course Title:	Python Programming
Course ISBN:	978-1-946113-00-9
Course Year:	2019

Note 1: Citation(s) listed may represent a subset of the instances where objectives are met throughout the course.

Note 2: Citation(s) refer to the "Lesson Text" elements within the course, unless otherwise noted. The course "Instructional Video" components are supplements designed to introduce or re-enforce the main lesson concepts, and the Lesson Text contains full details.

Note 3: "Python Programming" was released in 2019, after the 2018 DLCS review and adoption cycle was complete. While it was not formally aligned to all DLCS standards, it does meet many of them as described below. See our "Digital Savvy" course for additional coverage.

Course Description

8th grade content for Digital Literacy and Computer Science is organized into five strands of focused study. CompuScholar's "Python Programming" course covers these topics as described below.

Course Standards - 8th Grade

Computational Thinker	CITATION(S)
Abstraction	
1. Design a function using a programming language (block-based or script) that demonstrates abstraction. Example: Create a program in Game Lab that utilizes functions in an effort remove repetitive sequences of steps.	Chapter 9
2. Explain how abstraction is used in a given function. Example: Examine a set of block-based code and explain how abstraction was used..	Chapter 9

Algorithms	
3. Create an algorithm using a programming language, block-based or script, that includes conditionals and Boolean statements. Example: Use a programming language, block-based or script language if (jar jelly open = false) open jar else put knife in jelly jar	Chapter 4 Suppl. Chapter 3, Lesson 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.	Chapter 6 Suppl. Chapter 3, Lesson 3
5. Create a function to simplify a task. Example: The term “spread” as a function would include the steps involved in spreading jelly or peanut butter on a slice of bread.	Chapter 9 Suppl. Chapter 3, Lesson 3
Programming and Development	
6. Debate the efficiency of an algorithm or technology used to solve complex problems.	Suppl. Chapter 3, Lesson 3
7. Combine algorithmic processes and automation to increase efficiency.	Suppl. Chapter 3, Lesson 3
8. Create a program that includes selection, iteration, or abstraction, and initializes, updates, and re-initializes at least two variables. Examples: Make a game, interactive card, story, or adventure game.	Chapters 4, 6, 9 plus many chapter activities

Citizen of a Digital Culture	CITATION(S)
Safety, Privacy, and Security	
9. Compare and contrast common methods of data encryption.	Suppl. Chapter 3, Lesson 2
10. Secure a file or other data.	Suppl. Chapter 3, Lesson 2
Legal and Ethical Behavior	
11. Analyze different modes of social engineering and their effectiveness. Examples: Phishing, hoaxes, impersonation, baiting, spoofing.	Suppl. Chapter 2, Lesson 4
12. Advocate for positive, safe, legal, and ethical habits when creating and sharing digital content. Example: Students create a brochure that highlights the consequences of illegally downloading media.	Suppl. Chapter 2, Lessons 1-2
Digital Identity	
13. Cite evidence of the positive and negative effects of data permanence on personal and professional digital identity.	Suppl. Chapter 4, Lesson 2

Impact of Computing	
14. Evaluate the impact of digital globalization on public perception and ways Internet censorship can affect free and equitable access to information.	Suppl. Chapter 4, Lessons 1, 3
15. Analyze current events related to computing and their effects on education, the workplace, individuals, communities, and global society.	Suppl. Chapter 4, Lessons 1, 3
16. Critique computational artifacts, including options for accessibility for all users, with respect to the needs of a global culture.	Suppl. Chapter 4, Lessons 1, 3

Global Collaborator	CITATION(S)
Creative Communications	
17. Present content designed for specific audiences through an appropriate medium. Example: Create and share a help video for a senior's center that provides tips for online safety.	Chapter 13 (Creative project, adapt for purpose)
18. Communicate and/or publish individually or collaboratively to persuade peers, experts, community, etc., about issues and problems.	Chapter 13 (Creative project, adapt for purpose)
Digital Tools	
19. Type 40 words per minute (wpm) with 95% accuracy using appropriate keyboarding techniques.	N/A (See Digital Savvy)
Social Interactions	
20. Critique the impacts of net neutrality as it impacts global society. Example: Create a presentation outlining the social implications of limiting access to web content by favoring or blocking particular products or websites.	N/A (See Digital Savvy)
21. Examine an artifact that demonstrates bias through distorting, exaggerating, or misrepresenting data and redesign it to reflect truth more accurately. Example: Using a biased resource, redesign the artifact to include factual, relevant, unbiased content.	N/A (See Digital Savvy)

Computing Analyst	CITATION(S)
Data	
22. Compare and contrast various transferring protocols.	N/A (See Digital Savvy)
23. Differentiate types of data storage and apply most efficient structure. Examples: Stack, array, queue, table, database.	Chapter 6, Lesson 1 (See Digital Savvy for others)

24. Encrypt and decrypt various data. Example: Using decrypting or encrypting characters.	Suppl. Chapter 3, Lesson 2
Systems	
25. Design a digital artifact to propose a solution for a content-related problem. Example: Create a presentation outlining how to create a cost-efficient method to melt snow on roads during the winter.	Chapter 13 (Creative project, adapt for purpose)
26. Compare and contrast common methods of cybersecurity. Example: Discuss how password protections and encryption are similar and different.	Suppl. Chapter 2, Lesson 3
Modeling and Simulation	
27. Apply a model to a system that best represents the system selected.	N/A (See Digital Savvy)
28. Create a simulation that tests a specific model. Examples: Test how pressure changes with temperature in a controlled environment. Test how the rocket design affects the height of the rocket's launch. Test how the amount of water changes the height of a plant.	Chapter 13 (Creative project, adapt for purpose)

Innovative Designer	CITATION(S)
Human/Computer Partnerships	
29. Analyze assistive technologies and how they improve the quality of life for users. Example: Research multiple speech to text technologies and write a persuasive essay in favor of one over another.	N/A (See Digital Savvy)
30. Develop a logical argument for and against artificial intelligence. Examples: Students debate the use of artificial intelligence in self-driving vehicles. Students write a persuasive essay to argue for or against artificial intelligence.	Suppl. Chapter 4, Lesson 4
Design Thinking	
31. Create an artifact to solve a problem using ideation and iteration in the problem-solving process. Examples: Computer program, app.	Chapter 13 (Creative project)

Recurring Standards, All Grades	CITATION(S)
Safety, Privacy, and Security - 1. Identify, demonstrate, and apply personal safe use of digital devices.	Suppl. Chapter 2
Legal and Ethical Behavior - 2. Recognize and demonstrate age-appropriate responsible use of digital devices and resources as outlined in school/district rules.	Suppl. Chapter 2

Impact of Computing - 3. Analyze the potential impact of computing.	Suppl. Chapter 4, Lessons 1, 3
Systems - 4. Identify and employ appropriate troubleshooting techniques used to solve computing or connectivity issues.	Chapter 5
Collaborative Research - 5. Locate, curate, and evaluate information from digital sources to answer research questions.	N/A (See Digital Savvy)
Digital Tools - 6. Produce, review, and revise authentic artifacts using appropriate digital tools.	Chapter 13 (Creative project)