# CompuScholar, Inc.

## Alignment to Alabama **Digital Literacy and Computer Science** Standards

## 8th Grade

**Alabama Course Details:**

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

**CompuScholar Course Details:**

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| **Course Title:** | CompuScholar: Digital Savvy |
| **Course ISBN:** | 978-0-9887070-8-5 |
| **Course Year:** | 2018 |

**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.

## Course Description

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

## Course Standards - 8th Grade

| **Computational Thinker** | **CITATION(S)** |
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| **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 22, Lesson 3<br>Chapter 23 Activity<br>Supplemental Chapter 2, Lesson/Activity 2 |
| 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 22, Lesson 3<br>Chapter 23 Activity<br>Supplemental Chapter 2, Lesson/Activity 2 |

| **Algorithms** | |
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| 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 22, Lesson 3<br>Chapter 23, Lesson 3<br>Chapter 23 Activity |
| 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 22, Lesson 3<br>Chapter 23, Lessons 2-3<br>Chapter 23 Activity<br>Supplemental Chapter 2, Lesson/Activity 2 |
| 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 22, Lesson 3<br>Chapter 23 Activity<br>Supplemental Chapter 2, Lesson/Activity 2 |
| **Programming and Development** | |
| 6. Debate the efficiency of an algorithm or technology used to solve complex problems. | Chapter 22, Lesson 3<br>Supplemental Chapter 2, Lesson/Activity 2 |
| 7. Combine algorithmic processes and automation to increase efficiency. | Chapter 22, Lesson 3<br>Supplemental Chapter 2, Lesson/Activity 2 |
| 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. | Chapter 23, Lessons 1-3<br>Chapter 23 Activity |

| **Citizen of a Digital Culture** | **CITATION(S)** |
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| **Safety, Privacy, and Security** | |
| 9. Compare and contrast common methods of data encryption. | Chapter 8, Lessons 2-3<br>Supplemental Chapter 2, Lesson 3 |
| 10. Secure a file or other data. | Chapter 9, Lesson 2 |
| **Legal and Ethical Behavior** | |
| 11. Analyze different modes of social engineering and their effectiveness. Examples: Phishing, hoaxes, impersonation, baiting, spoofing. | Supplemental Chapter 1, Lesson 2 |

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| 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. | Chapter 8, Lesson 4<br>Chapter 8, Lesson 5 |
| **Digital Identity** | |
| 13. Cite evidence of the positive and negative effects of data permanence on personal and professional digital identity. | Chapter 8, Lesson 1<br>Chapter 16, Lesson 1 |
| **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. | Supplemental Chapter 1, Lesson/Activity 1 |
| 15. Analyze current events related to computing and their effects on education, the workplace, individuals, communities, and global society. | Chapter 2, Lesson 5<br>Supplemental Chapter 1, Lessons/Activities 1 and 5 |
| 16. Critique computational artifacts, including options for accessibility for all users, with respect to the needs of a global culture. | Supplemental Chapter 1, Lessons/Activities 1 and 3 |

| **Global Collaborator** | **CITATION(S)** |
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| **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. | Chapters 9 - 11, 14, 25 |
| 18. Communicate and/or publish individually or collaboratively to persuade peers, experts, community, etc., about issues and problems. | Chapters 9 - 11, 14, 25 |
| **Digital Tools** | |
| 19. Type 40 words per minute (wpm) with 95% accuracy using appropriate keyboarding techniques. | Supplemental Chapter 3, Lesson/Activity 1 |
| **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. | Supplemental Chapter 1, Lesson/Activity 5 |
| 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. | Chapter 7, Lesson 3<br>Supplemental Chapter 1, Lesson/Activity 1 |

| **Computing Analyst** | **CITATION(S)** |
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| **Data** | |
| 22. Compare and contrast various transferring protocols. | Chapter 6, Lesson 6 |
| 23. Differentiate types of data storage and apply most efficient structure. Examples: Stack, array, queue, table, database. | Supplemental Chapter 2, Lesson 4 |
| 24. Encrypt and decrypt various data. Example: Using decrypting or encrypting characters. | Supplemental Chapter 2, Lesson/Activity 3 |
| **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 14<br>Chapter 25<br>(Student-selected projects and presentations on issues) |
| 26. Compare and contrast common methods of cybersecurity. Example: Discuss how password protections and encryption are similar and different. | Chapter 8, Lessons 1 - 3<br>Supplemental Chapter 2, Lesson 3 |
| **Modeling and Simulation** | |
| 27. Apply a model to a system that best represents the system selected. | Supplemental Chapter 2, Lesson/Activity 5 |
| 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. | Supplemental Chapter 2, Lesson/Activity 5 |

| **Innovative Designer** | **CITATION(S)** |
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| **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. | Supplemental Chapter 1, Lesson / Activity 3 |
| 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. | Supplemental Chapter 1, Lesson / Activity 4 |

| **Design Thinking** | |
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| 31. Create an artifact to solve a problem using ideation and iteration in the problem-solving process. Examples: Computer program, app. | Chapter 14<br>Chapter 25<br>(Students create digital artifacts with iterative development) |

| **Recurring Standards, All Grades** | **CITATION(S)** |
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| **Safety, Privacy, and Security -** 1. Identify, demonstrate, and apply personal safe use of digital devices. | Chapter 8, Lessons 1 - 3<br>Chapter 18, Lesson 4 |
| **Legal and Ethical Behavior -** 2. Recognize and demonstrate age-appropriate responsible use of digital devices and resources as outlined in school/district rules. | Chapter 8, Lessons 4 - 5 |
| **Impact of Computing -** 3. Analyze the potential impact of computing. | Chapter 2, Lesson 5<br>Chapter 24, Lesson 1<br>Supplemental Chapter 1<br>(All Lessons) |
| **Systems -** 4. Identify and employ appropriate troubleshooting techniques used to solve computing or connectivity issues. | Chapter 5 (All Lessons)<br>Chapter 6, Lesson 4 |
| **Collaborative Research -** 5. Locate, curate, and evaluate information from digital sources to answer research questions. | Chapter 7 (All Lessons)<br>Chapters 14 and 25<br>Supplemental Chapter 1,<br>Activities 4, 5 |
| **Digital Tools -** 6. Produce, review, and revise authentic artifacts using appropriate digital tools. | Chapters 9 - 12, 14, 15, 19 - 23, 25, and more |