

CompuScholar, Inc.

Alignment to South Carolina **Fundamentals of Computing (5023)** Standards

South Carolina Course Details:

Course Title:	5023 - Fundamentals of Computing
Grade Level:	12-Sep
Standards Link:	SCFundamentalsComputing.pdf

CompuScholar Course Details:

Course Title:	Digital Savvy
Course ISBN:	978-0-9887070-8-5
Course Year:	2022

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

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

Note 3: "Supplemental" or "Suppl." citation(s) refer to Supplemental chapters included at the end of the course.

South Carolina Course Description

Fundamentals of Computing is designed to introduce students to the field of computer science through an exploration of engaging and accessible topics. Through creativity and innovation, students will use critical thinking and problem solving skills to implement projects that are relevant to students' lives. They will create a variety of computing artifacts while collaborating in teams. Students will gain a fundamental understanding of the history and operation of computers, programming, and web design. Students will also be introduced to computing careers and will examine societal and ethical issues of computing.

South Carolina Course Standards

A. SAFETY	CITATION(S)
1. Review school safety policies and procedures.	Chapter 8, Lessons 1, 4 Chapter 24, Lesson 3
2. Review classroom safety rules and procedures.	Chapter 8, Lessons 1, 4 Chapter 24, Lesson 3
3. Review safety procedures for using equipment in the classroom.	Chapter 8, Lessons 1, 4 Chapter 24, Lesson 3
4. Identify major causes of work-related accidents in office environments.	Chapter 24, Lesson 3
5. Demonstrate safety skills in an office/work environment.	Chapter 24, Lesson 3

B. STUDENT ORGANIZATIONS	CITATION(S)
1. Identify the purpose and goals of a Career and Technology Student Organization (CTSO).	Suppl. Chapter 3, Lesson 2
2. Explain how CTSOs are integral parts of specific clusters, majors, and/or courses.	Suppl. Chapter 3, Lesson 2
3. Explain the benefits and responsibilities of being a member of a CTSO.	Suppl. Chapter 3, Lesson 2
4. List leadership opportunities that are available to students through participation in CTSO conferences, competitions, community service, philanthropy, and other activities.	Suppl. Chapter 3, Lesson 2
5. Explain how participation in CTSOs can promote lifelong benefits in other professional and civic organizations.	Suppl. Chapter 3, Lesson 2

C. TECHNOLOGY KNOWLEDGE	CITATION(S)
1. Demonstrate proficiency and skills associated with the use of technologies that are common to a specific occupation.	Chapters 7, 9, 10, 11, 14, 16 (Common workplace apps)
2. Identify proper netiquette when using e-mail, social media, and other technologies for communication purposes.	Chapter 8, Lesson 4 Chapter 16, Lesson 1 Chapter 18, Lesson 4
3. Identify potential abuse and unethical uses of laptops, tablets, computers, and/or networks.	Chapter 8, Lessons 1 - 4
4. Explain the consequences of social, illegal, and unethical uses of technology (e.g., piracy; illegal downloading; licensing infringement; inappropriate uses of software, hardware, and mobile devices in the work environment).	Chapter 8, Lessons 1, 2, 4, 5
5. Discuss legal issues and the terms of use related to copyright laws, fair use laws, and ethics pertaining to downloading of images, photographs, documents, video, sounds, music, trademarks, and other elements for personal use.	Chapter 8, Lessons 4, 5
6. Describe ethical and legal practices of safeguarding the confidentiality of business-related information.	Chapter 8, Lessons 2, 3, 4
7. Describe possible threats to a laptop, tablet, computer, and/or network and methods of avoiding attacks.	Chapter 8, Lessons 1, 2, 3
8. Evaluate various solutions to common hardware and software problems.	

D. PERSONAL QUALITIES AND EMPLOYABILITY SKILLS	CITATION(S)
1. Demonstrate punctuality.	Chapter 13, Lesson 1 Chapter 24, Lesson 2 Chapters 14, 25

2. Demonstrate self-representation.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
3. Demonstrate work ethic.	Chapter 13, Lesson 1 Chapter 24, Lesson 2 Chapters 14, 25
4. Demonstrate respect.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
5. Demonstrate time management.	Chapter 13, Lessons 1, 2 Chapter 24, Lesson 2 Chapters 14, 25
6. Demonstrate integrity.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
7. Demonstrate leadership.	Chapter 13, Lessons 1, 2, 3 Chapter 24, Lesson 2 Chapters 14, 25
8. Demonstrate teamwork and collaboration.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
9. Demonstrate conflict resolution.	Chapter 13, Lesson 3 Chapter 24, Lesson 2 Chapters 14, 25
10. Demonstrate perseverance.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
11. Demonstrate commitment.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
12. Demonstrate a healthy view of competition.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
13. Demonstrate a global perspective.	Suppl. Chapter 1, Lesson 1
14. Demonstrate health and fitness.	Chapter 24, Lesson 2
15. Demonstrate self-direction.	Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
16. Demonstrate lifelong learning.	Chapter 24, Lesson 1 Suppl. Chapter 3, Lesson 2

E. PROFESSIONAL KNOWLEDGE	CITATION(S)
1. Demonstrate effective speaking and listening skills.	Many opportunities throughout the course, e.g: Chapter 11, Lesson 6 Chapter 13, Lessons 1, 3 Chapter 24, Lesson 2 Chapters 14, 25
2. Demonstrate effective reading and writing skills.	Many opportunities throughout the course, e.g. Chapters 3, 7, 14, 25 Activities
3. Demonstrate mathematical reasoning.	Chapter 10, Lesson 6 Chapter 10, Activity 2 Chapter 23, Lesson 2 Chapter 23 Activity
4. Demonstrate job-specific mathematics skills.	Chapter 10, Lesson 6 Chapter 10, Activity 2 Chapter 23, Lesson 2 Chapter 23 Activity
5. Demonstrate critical-thinking and problem-solving skills.	Chapter 5, Lesson 3 Chapter 7, Lesson 3 Chapters 14 and 25 Suppl. Chapter 1, Lessons 1, 4, 5
6. Demonstrate creativity and resourcefulness.	Chapter 11, Activities 1, 2 Chapter 15 Chapters 14 and 25 Suppl. Chapter 2, Lesson 2
7. Demonstrate an understanding of business ethics.	Chapter 8, Lessons 2, 4, 5 Chapter 24, Lesson 2
8. Demonstrate confidentiality.	Chapter 8, Lessons 2, 4 Chapter 24, Lesson 2
9. Demonstrate an understanding of workplace structures, organizations, systems, and climates.	Chapter 13, Lessons 1, 2 Chapter 24, Lessons 1, 2 Chapters 14, 25
10. Demonstrate diversity awareness.	Chapter 24, Lesson 2 Suppl. Chapter 1, Lessons 1, 3
11. Demonstrate job acquisition and advancement skills.	Chapter 13, Lessons 1, 2, 3 Chapter 18, Lesson 3 Chapter 24, Lessons 1, 2 Chapter 24 Activity
12. Demonstrate task management skills.	Chapter 13, Lesson 2 Chapter 24, Lesson 2 Chapters 14, 25
13. Demonstrate customer-service skills.	Chapter 24, Lesson 2 Chapters 14, 25

F. EVOLUTION OF COMPUTING	CITATION(S)
1. Define key computing terms (e.g. hardware, software, data, etc.).	Chapter 1, Lessons 1, 2, 3 Chapter 2, Lesson 1
2. Identify key individuals and their impact on the field of computing.	Chapter 1, Lesson 4
3. Discuss the progression of computing and explain its impact on society (e.g. hardware, programming languages, applications, Internet, emerging technologies, etc.).	Chapter 1, Lesson 4 Chapter 2, Lessons 1, 2, 5 Suppl. Chapter 1
4. Explain Moore's Law.	Chapter 1, Lesson 4

G. COMPUTING SYSTEMS	CITATION(S)
1. Identify and define the key functional components (input devices, output devices, processor, operating system, software applications, memory, storage, etc.).	Chapter 1, Lessons 1, 2, 3 Chapter 2, Lessons 1, 2
2. Understand the terms and units that are used to describe major hardware components (RAM, ROM, Peta-, Tera-, Giga-, Mega- Kilo-, Hz, Bit, Byte, Binary, etc.).	Chapter 1, Lesson 2 Suppl. Chapter 2, Lesson 1
3. Describe how software and hardware interact.	Chapter 1, Lesson 2 Chapter 2, Lesson 1
4. Discuss how and why binary is used to represent data in a computer.	Suppl. Chapter 2, Lessons 1, 3
5. Describe how a picture, sound/song, and video are digitized and represented in a computer.	Suppl. Chapter 2, Lesson 3
6. Compare and contrast operating systems (e.g., Mac, Windows, Linux, ChromeOS, iOS, Android).	Chapter 3, Lesson 1
7. Evaluate hardware and software configuration to meet situational and budgetary requirements (e.g. gaming, Internet browsing, student, graphic designer, etc.).	Chapter 1, Lesson 2
8. Make hardware and software recommendations to improve a computer system.	Chapter 1, Lesson 2

H. PROBLEM SOLVING AND COMPUTATIONAL THINKING	CITATION(S)
1. Describe how computer programs and apps can be used to solve various problems (e.g., desktop, mobile, enterprise).	Chapter 2, Lesson 2 Chapters 9, 10, 11, 12, 15, 16
2. Solve a problem by applying appropriate problem solving techniques (understand the problem, plan the solution, carry out the plan, review and discuss).	Chapters 14, 25
3. Define algorithm (a set of clearly defined, logical steps to solve a problem).	Chapter 22, Lesson 3

4. Demonstrate an understanding of algorithms and their practical applications.	Chapter 22, Lesson 3 Chapter 23 Activity
5. Create, evaluate, and adjust algorithms to solve a variety of problems.	Chapter 22, Lesson 3 Chapter 23 Activity

I. FUNDAMENTALS OF PROGRAMMING	CITATION(S)
1. Express the design of a program using representations such as flowcharts and pseudocode.	Chapter 22, Lesson 3
2. Analyze and explain how a particular program functions.	Chapter 23, Lessons 2, 3
3. Solve problems of increasing complexity using visual block-based programming individually and collaboratively.	Chapters 22, 23
4. Write code that uses variables, events, functions, operators (i.e. arithmetic, relational, logical), conditional control structures (e.g., if, if-else) and repetition/iteration control structures (e.g., while, for).	Chapters 22, 23 (excluding functions, events)
5. Differentiate between text and numerical data.	Chapter 23, Lesson 1
6. Edit, compile/run, test, and debug a program.	Chapters 22, 23

J. FUNDAMENTALS OF WEB DESIGN	CITATION(S)
1. Evaluate the results of Internet searches and the reliability of information found on Web sites.	Chapter 7, Lesson 3
2. Describe how Web sites are used to communicate and exchange data.	Chapters 16, 17, 18, 19, 20, 21
3. Plan a web page considering subject, devices, audience, layout, color, links and graphics.	Chapter 20, Lesson 3
4. Create a web page that contains a variety of HTML elements (e.g., hyperlinks, ordered and unordered lists, images, headings, paragraph) and CSS styles.	Chapters 19, 20, 21

K. ETHICAL, LEGAL & SOCIAL ISSUES OF COMPUTING	CITATION(S)
1. Examine the consequences resulting from issues involving ethics around security, privacy, copyright, fair use, intellectual property, social media and licensing.	Chapter 8, Lessons 4, 5 Chapters 17, 18
2. Explain the importance of Acceptable Use Policies.	Chapter 8, Lesson 4
3. Explain the importance of data security and physical security.	Chapter 8, Lessons 2, 3
4. Explain the concepts of confidentiality, integrity, and availability (CIA).	Chapter 8, Lesson 2

5. Identify computing threats (e.g., spyware, adware, malware, viruses, ransomware, phishing, hacking, software piracy, identity theft, etc.) and their potential impacts on society.	Chapter 8, Lesson 1 Suppl. Chapter 1, Lesson 2
6. Explain the concept of encryption and how it is used on a daily basis.	Chapter 8, Lesson 3 Suppl. Chapter 2, Lesson 3

L. COMPUTING CAREERS	CITATION(S)
1. Compare and contrast the five disciplines of computing: computer science, software engineering, information technology, information systems, and computer engineering.	Chapter 24, Lesson 1 Chapter 24 Activity
2. Compare and contrast careers in computing along with their education, training requirements, industry certifications and salary ranges.	Chapter 24, Lesson 1 Chapter 24 Activity
3. Identify gender, diversity and geographic related issues in computing.	Suppl. Chapter 1, Lesson 1
4. Describe how computing enhances other career fields.	Suppl. Chapter 1, Lesson 5