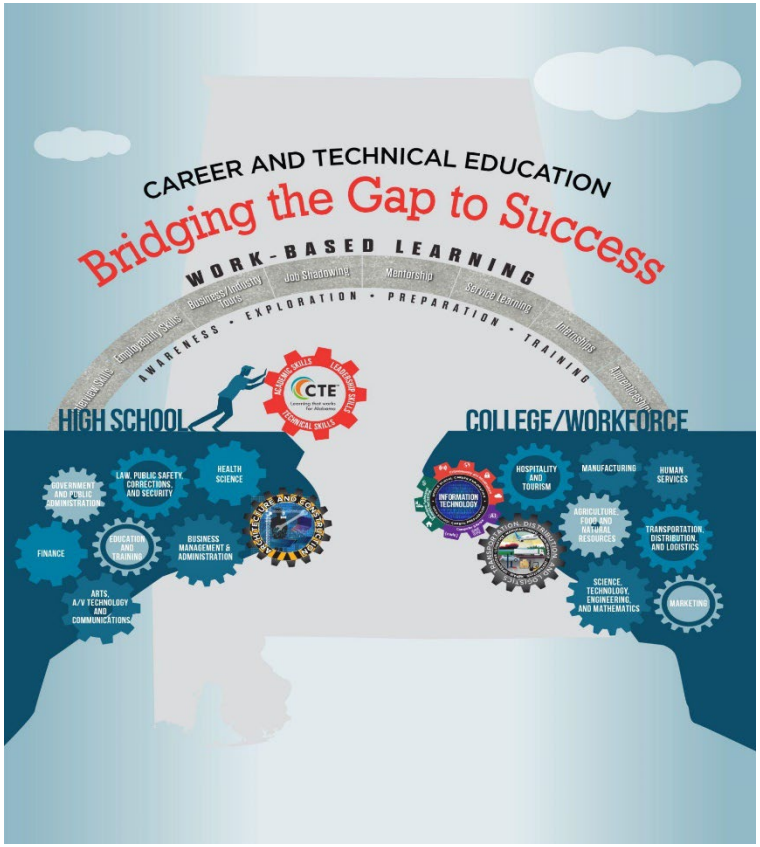
Information Technology Rubric

Publisher Name: CompuScholar, Inc.



2022

Eric G. Mackey, State Superintendent of Education Alabama State Department of Education

Publisher Name: ____CompuScholar, Inc. – "Digital Savvy" Course____

CompuScholar Course Details:

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

Publisher Note 1: 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 can be ignored for alignment purposes.

Publisher Note 2: Citation(s) to "Supplemental" or "Suppl." chapters refer to Supplemental Chapters found at the end of the main sequence of numbered chapters within the course.

INFORMATION TECHNOLOGY FUNDAMENTALS
CONTENT STANDARDS

Each content standard completes the stem *"**Students will**..."*

Topic	Content Standard	Location of Content Standard in Resource (chapters, sections, pages, etc.)
Applications and Software	1. Explain the purposes of operating systems, including interfaces between applications and hardware, process management and scheduling, access control protection, and management of applications, memory, disks, and devices. 2. Describe different types of operating systems and explain the advantages and disadvantages of each. *Examples: mobile vs. computer, proprietary, Linux, Microsoft Operating System* 3. Compare and contrast components of operating systems, including file systems, features, file management, services, processes, drivers, utilities, and interfaces. 4. Select and use productivity software for real-world applications. *Examples: office tools, open-source tools* 5. Describe various types of applications and delivery models. *Examples: locally installed, local network hosted, cloud hosted, one-tier, two-tier, three-tier, n-tier, low-code or no-code programming, WYSIWYG web development* 6. Configure and manage web browsers, including caching, clearing a cache, deactivating client-side scripting, utilizing	1. Chapter 3, Lessons 1, 2, 3 Text 2. Chapter 3, Lesson 1 Text 3. Chapter 2, Lesson 1 Text Chapter 3, Lessons 1, 2 Text Chapter 4, Lessons 1, 2, 3 Text 4. Chapter 9, Lessons 1, 2, 3 Text Chapter 10, Lessons 1, 2, 3 Text Chapter 11, Lessons 1, 2, 3 Text 5. Chapter 2, Lessons 2, 4 Text Chapter 9, Lesson 1 Text Chapter 10, Lesson 1 Text Chapter 11, Lesson 1 Text Chapter 15, Lesson 1 Text 6. Chapter 2, Lesson 3 Text

	browser add-ons and extensions, private browsing, proxy settings, certificates, popup blockers, script blockers, and compatible browsers for various applications. 7. Compare and contrast common data storage units of measurement used for computing. *Examples: bytes, bits, throughput rate*	7. Chapter 23, Lesson 1 Text Suppl. Chapter 2, Lessons 1, 3 Text

Infrastructure	8. Compare the purposes of common devices used for networking and peripheral input and output interfaces. *Examples: scanners, digital cameras, webcams, routers, switches* a. Distinguish between input and output devices, including monitor, keyboard, mouse, and printer. *Example: Create a table to categorize devices.* 9. Set up and install common peripheral devices to a laptop or desktop PC. *Examples: external storage, printers, cameras* 10. Explain the purposes and functions of common internal computing components. *Examples: motherboard, hard drive, RAM, expansion card, CPU* 11. Compare and contrast the characteristics, advantages, and disadvantages of common Internet service infrastructure, including fiber optic, cable, wireless, and DSL. 12. Compare and contrast cloud computing and traditional computing, including how data elements are organized and where data is stored. a. Explain why businesses regard critical data and information as assets. *Examples: data-driven decisions, crown jewels analysis, trade secrets/proprietary data, patent information* b. Explain the importance of promoting and protecting the intellectual property of a business. 13. Compare and contrast common computing devices and their purposes. *Examples: mobile phones, tablets, laptops, servers, game*	8. Chapter 1, Lesson 3 Text Chapter 6, Lesson 1 Text 9. Chapter 1, Lesson 3 Text Chapter 3, Lesson 2 Text 10. Chapter 1, Lesson 2 Text 11. Chapter 6, Lesson 1 Text 12. N/A (cloud computing) Chapter 8, Lesson 2 Text (critical business data Chapter 8, Lesson 5 Text (intellectual property) 13. Chapter 1, Lessons 1, 2 Text

	consoles 14. Explain and illustrate basic networking concepts. *Examples: establishing network communications, inputting device addresses, connecting network devices* 15. Summarize and explain the troubleshooting methodology. 16. Install, configure, and secure a basic wireless network. *Examples: 802.11a/b/g/n/ac standards, modems, routers, cable media*	14. Chapter 6, Lessons 1 – 5 Text 15. Chapter 5, Lesson 3 Text 16. Suppl. Chapter 3, Lesson 5 Text
Database Fundamentals	17. Explain the concept of a database and how its use may increase productivity. *Examples: flowcharts, storage, records, managed database* 18. Compare and contrast various database management systems, including structured, semi-structured, and non-structured, and relational and non-relational types.	17. Chapter 12, Lessons 1, 2 Text 18. Chapter 12, Lessons 1, 2 Text (Relational only)

	Examples: JSon, SQL, XML 19. Design, create, and manage a database structure using various systems. 20. Summarize methods used to interface with databases, including relational, access, and import/export methods.	19. Chapter 12, Lessons 2 – 5 Text 20. Chapter 12, Lessons 1, 2, 5 Text
Security	21. Research and share information on the importance of data confidentiality and security. 22. Explain methods to secure various electronic devices in a network environment. 23. Summarize end-user behavioral security practices. 24. Compare and contrast methods of applying authentication, authorization, accounting, and non-repudiation procedures in a network environment. 25. Explain why an employer may require employees to change passwords regularly. 26. Explain the importance of encryption for data security and describe ways it is commonly used. 27. Explain cybersecurity concepts as they relate to a network. 28. Explain why it is important for businesses to secure and protect their data and describe scenarios which might result in compromised data.	21. Chapter 8, Lessons 2, 3 Text 22. Chapter 8, Lessons 1, 3 Text Chapter 18, Lesson 4 Text Suppl. Chapter 3, Lesson 5 Text 23. Chapter 8, Lesson 1 Text Chapter 18, Lesson 4 Text Suppl. Chapter 1, Lesson 2 Text 24. Chapter 8, Lesson 2 Text 25. Chapter 8, Lesson 3 Text 26. Chapter 8, Lesson 3 Text 27. Chapter 8, Lessons 1, 2, 3 Text Chapter 18, Lesson 4 Text Suppl. Chapter 1, Lesson 2 Text 28. Chapter 8, Lessons 1, 2, 3 Text Chapter 18, Lesson 4 Text Suppl. Chapter 1, Lesson 2 Text

	Examples: human error (social engineering, sharing password), physical compromise of devices (spoofing devices)	
Software Development	29. Compare and contrast notational systems. *Examples: binary, hexadecimal, decimal, ASCII, Unicode*	29. Suppl. Chapter 2, Lessons 1, 3 Text
	30. Compare and contrast interpreted, compiled, query, and assembly programming language categories. *Examples*: *scripting languages, scripted languages, markup languages*	30. Chapter 22, Lesson 1 Text
	31. Use programming organizational techniques and demonstrate programming procedures. *Examples*: *scripting languages, scripted languages, markup languages, branching, looping*	31. Chapters 22, 23
	32. Explain the purpose and use of programming concepts including identifiers, containers, functions, and objects.	32. Chapter 23, Lesson 1 Text (identifiers/containers only)
	33. Compare and contrast fundamental data types and their characteristics. *Examples: characters, strings, integers, floats, Boolean*	33. Chapter 23, Lesson 1 Text
	34. Design a step-by-step plan (algorithm) to solve a given problem. *Example: Recipe for creating brownies from a box mix: Follow the three to five step process written on the back of the box.*	34. Chapter 22, Lesson 3 Text
	35. Identify decision structures that control program flow. *Examples*: *Determine the exact output of a program from a flow chart.*	35. Chapter 23, Lesson 3 Text
	36. Explain techniques for code commenting and documentation. *Example: inserting meta text in source code*	36. N/A

	37. Design a program that uses mathematical operations, data, functions, looping and iteration, sequencing, abstraction, lists, and selection. *Examples: if-else statements, comparison, other operators*	37. Chapter 23 Activity (mathematical operations, data, looping)
Career Opportunities	38. Gather and interpret research data to predict changes in the information technology labor market.	38. Chapter 24, Lesson 1 Text Chapter 24 Activity Suppl. Chapter 3, Lesson 2 Text