Florida CTE

Information Technology: Digital Discoveries in Society

Demonstrate an understanding of the problem solving process. CTE1.0	**1.01** Identify and explain the four parts of the problem solving process (Define, Prepare, Try, and Reflect). CTE1.01
	1.02 Describe the strategies and processes to become a more effective problem solver. CTE1.02
	1.03 Explain how computers help people to solve problems. CTE1.03
	1.04 Compare and contrast how people and computers approach problems differently. CTE1.04
	1.05 Explain what a computer needs from people in order to solve problems effectively. CTE1.05
Identify computer components and their functions. CTE2.0	**2.01** Define "computer," and explain why it is important to have a basic understanding of how computers work. CTE2.01
	2.02 Describe the four functions of the computing cycle (i.e., input, processing, output, storage). CTE2.02
	2.03 Identify the internal components of a computer (e.g., case, CPU, RAM, ROM, power supply, hard drive, motherboard, expansion cards, cabling). CTE2.03
	2.04 Identify and know how to connect various computer input devices (e.g., mouse, keyboard, phone, camera, scanner, microphone, game controller, stylus, barcode reader, finger print scanner, GPS device, touch pad, graphics tablet) and describe their use. CTE2.04
	2.05 Identify and know how to connect various computer output devices (e.g., monitor, printer, projector, speakers, and headphones) and describe their use. CTE2.05
	2.06 Identify and know how to connect various storage devices (e.g., flash drive, external hard drive (SSD, network drive), memory card, discs, and cloud). CTE2.06
	7 Identify various computer connection ports, including USB, FireWire, parallel, serial, Ethernet (RJ-45), RJ-11, HDMI, audio. CTE2.07

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	2.08	Illustrate and correctly label the parts of a computer system. CTE2.08
	2.09	Describe how people use computers at home, school and work. CTE2.09
	2.10	Define the term "cloud storage" and explain the advantages and disadvantages of using cloud storage. CTE2.10
Demonstrate an understanding of internet safety and ethics. CTE3.0	3.01	Describe strong password practices and explain why such practices are needed at school, home and work. CTE3.01
	3.02	Define “privacy” and relate it to the term “digital footprint.” CTE3.02
	3.03	Practice cyber safety techniques to protect your personal information when using internet searches, email, chat rooms, and social network websites. CTE3.03
	3.04	Describe cyberbullying, its impact on perpetrators and victims and ways to respond. CTE3.04
	3.05	Describe risks associated with online gaming, and identify ways to reduce these risks. CTE3.05
	3.06	Discuss issues related to downloading music, videos, or images from the Internet, including unethical vs. illegal actions. CTE3.06
	3.07	Compare and contrast rules for copyright and fair use, especially in relation to using online resources for school and educational purposes. CTE3.07
	3.08	Properly cite sources used for images and information obtained from the internet for projects and research CTE3.08
	3.09	Review your district/school Acceptable Use Policies when accessing the Internet and adhere to the AUP while using school equipment, internet and software. CTE3.09
Demonstrate proficiency using the Internet to locate information. CTE4.0	4.01	Identify and use web terminology (WWW, Web Browser, Internet, Web Server, Web Page, Address Bar, Hyperlinks, Navigation Buttons, Search Bar, Bookmarks/Favorites, Tab, Downloading, Plug-ins, and Social Media Plug-ins). CTE4.01
	4.02	Define Universal Resource Locators (URLs) and associated protocols (e.g., http, https, ftp, telnet, mailto). CTE4.02
	4.03	Compare and contrast the types of Internet domains (e.g., .com, .org, .edu, .gov, .net, .mil). CTE4.03
	4.04	Demonstrate proficiency using search engines, including Boolean and other advanced search techniques. CTE4.04

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	4.05	**Demonstrate proficiency in uploading and downloading files, images, documents and music for class projects and collaboration.** CTE4.05
	4.06	**Compare and contrast the roles of web browsers and search engines.** CTE4.06
	4.07	**Evaluate online information for relevance, credibility and quality using basic guidelines and indicators (e.g. authority, affiliation, purpose, bias, date).** CTE4.07
	4.08	**Distinguish between copyright infringement, plagiarism and fair use in an educational setting and in relation to school projects, especially with music and pictures.** CTE4.08
	4.09	**Identify and apply copyright and fair use guidelines, and explain plagiarism as an ethical and legal violation.** CTE4.09
	4.10	**Incorporate results from Internet searches into a research project (e.g., report, summary, website design, app creation, etc.).** CTE4.10
	4.11	**Download images as needed to support a research project, complying with copyright notices.** CTE4.11
	4.12	**Properly cite internet sources used to obtain information for a research project.** CTE4.12
	4.13	**Explain what creative commons licensing is and why it is important to web designers and programmers.** CTE4.13
Demonstrate proficiency in web page development. CTE5.0	**5.01**	**Identify website domains, and relate a site's domain name and domain category to its purpose (.gov, .mil, .org, .com, etc.)** CTE5.01
	5.02	**Relate basic components of a webpage (e.g. color, space, written content, typography, images, links, multimedia) to aesthetic, functional and/or usable design principals.** CTE5.02
	5.03	**Define aesthetic design, and explain how aesthetics can affect a visitors' perception of a website's information.** CTE5.03
	5.04	**Demonstrate knowledge of color wheel concepts and effective use of color on a website.** CTE5.04
	5.05	**Explain the CARP principles of design (contrast, alignment, repetition, proximity), and give an example of how each principle is used in designing aesthetic layouts.** CTE5.05
	5.06	**Critique the aesthetic design, usability and accessibility of sample websites.** CTE5.06
	7	**Define multimedia, and identify its role in webpage interactivity.** CTE5.07

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5.08 **Explain the primary steps of the website planning process.** CTE5.08

5.09 **Apply the website planning process to plan the design for basic website.** CTE5.09

5.10 **Build the site navigation scheme for a website.** CTE5.10

5.11 **Define "HTML (Hypertext Markup Language)" and related terms, including tag vs. element, container vs. empty tag, block-level vs. inline element, attribute value, semantic tag.** CTE5.11

5.12 **Identify HTML elements required to create webpage structure (!DOCTYPE, html, head, title, body)** CTE5.12

5.13 **Create webpages using basic HTML tags (e.g., headings, lists, character styles, text alignment, tables, and comments).** CTE5.13

5.14 **Use HTML to create hyperlinks to multiple pages in a website or to outside sources.** CTE5.14

5.15 **Use HTML to insert common image file formats into webpages, and use an image as a hyperlink.** CTE5.15

5.16 **Explain Cascading Style Sheet (CSS) technology.** CTE5.16

5.17 **Apply CSS styles to an HTML page.** CTE5.17

5.18 **Review webpage content, verify copyright restrictions, and create meta-data before publishing a site to the internet.** CTE5.18

5.19 **Test webpages for display, functionality, and accessibility before publishing a site to the Internet.** CTE5.19

5.20 **Validate webpage code using W3C validation tools before publishing a site to the Internet.** CTE5.20

5.21 **Describe network issues relating to websites, including bandwidth, compression, streaming, web hosting.** CTE5.21

5.22 **Explain the purpose of File Transfer Protocol (FTP) in accessing information on the Internet.** CTE5.22

5.23 **Design and create a personal website using HTML and CSS with at least three different pages that are hyperlinked to the homepage.** CTE5.23

5.24 **Publish a website.** CTE5.24

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I **Describe the role of games in modern society (e.g., education, task training, social networking, therapy, recreation).** CTE6.01

6.02 **Identify various types of games (e.g., chance, skill, knowledge, role-playing, and storytelling).** CTE6.02

6.03 **Identify the steps of the design process for creating a game.** CTE6.03

6.04 **Apply the design process to solving a problem.** CTE6.04

6.05 **Analyze (deconstruct) existing games.** CTE6.05

6.06 **Identify the tools and skills needed for creating games.** CTE6.06

6.07 **Identify design criteria and constraints.** CTE6.07

6.08 **Create storyboards to model a game's program flow and functionality.** CTE6.08

6.09 **Identify the programmer's role in creating games.** CTE6.09

6.10 **Identify common programming languages and applications used to create computer games.** CTE6.10

6.11 **Compare sequential, iteration (loop) and selection programming structures.** CTE6.11

6.12 **Define the term algorithm (i.e., a set of repeatable steps) and how it applies to problem solving.** CTE6.12

6.13 **Create an algorithm to solve a problem or complete a task.** CTE6.13

6.14 **Use pseudo-code to model a game program's flow.** CTE6.14

6.15 **Define logic errors and identify them in a game program or model.** CTE6.15

6.16 **Explain the types and uses of variables in game programming.** CTE6.16

6.17 **Describe basic Boolean concepts, including logical operators, order of precedence, expressions.** CTE6.17

6.18 **Describe the use of events, event handlers and functions in game programming.** CTE6.18

6.19 **Describe the use of parameters and arguments in game programming.** CTE6.19

6.20 **Describe the use of objects, classes and instances in game programming.** CTE6.20

6.21 **Describe the use of properties and methods with objects in game programming.** CTE6.21

2 **Write appropriate code to create a simple game using structured programming.** CTE6.22

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	6.23 Test and evaluate the game program you created. CTE6.23
	6.24 Modify the game program as needed to solve a problem. CTE6.24
	6.25 Create an animated object (i.e., sprite) to be used in a game program. CTE6.25
	6.26 Use programming code to control the behavior of an animated object (i.e., sprite) in a game program. CTE6.26
Demonstrate proficiency in basic programming. CTE7.0	**7.01** Define "programming" and discuss its role in computing. CTE7.01
	7.02 Explain the binary representation of data and programs in computers. CTE7.02
	7.03 Distinguish among the three types of programming languages (machine, assembly, high-level), and give examples. CTE7.03
	7.04 Compare and contrast languages that are usually compiled (e.g., C++, Java) and interpreted (e.g., JavaScript, Python). CTE7.04
	7.05 Describe the structure of a simple program, and explain why sequencing is important. CTE7.05
	7.06 Write a program design document using pseudo-code that shows program flow. CTE7.6
	7.07 Define the term "algorithm," and explain how it relates to problem-solving. CTE7.07
	7.08 Explain the three types of programming errors (i.e., logic, syntax, runtime), and describe the forms of testing that can be used to locate and debug errors. CTE7.08
	7.09 Solve a problem using logic by planning a strategy, designing and testing a hypothesis, and/or creating a set of step-by-step instructions to perform a task. CTE7.09
	7.10 Define "structured programming" and discuss the advantages of this approach. CTE7.10
	7.11 Define the three main programming control structures used in structured programming: sequential, selection (decision), and iteration (loops). CTE7.11
	7.12 Describe iterative programming structures (e.g., while, do/while) and how they are used in programming. CTE7.12
	7.13 Describe selection programming structures (e.g., if/then, else) and explain the logic used for if statements. CTE7.13

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	7.14 Write a simple program in pseudo-code that uses structured programming to solve a problem. CTE7.14
	7.15 Explain the types and uses of variables in programming. CTE7.15
	7.16 Describe fundamental Boolean concepts, including Boolean algebra, operators, and logic. CTE7.16
	7.17 Convert a simple program from pseudo-code into a common high-level programming environment. CTE7.17
	7.18 Troubleshoot and debug errors in code. CTE7.18
	7.19 Define "programming" and discuss its role in computing. CTE7.19
Demonstrate proficiency in physical computing with hardware devices. CTE8.0	**8.01** View hardware as an approachable and fun topic in computing. CTE8.01
	8.02 Believe that anyone can contribute to innovation. CTE8.02
	8.03 Use physical computing (aka: Microbits, Circuit Playgrounds, Arduino, Lilypads, Makey-Makey, Piper Kits, Raspberry Pi's, etc.) to solve problems. CTE8.03
	8.04 Determine how computers sense and respond to their environment. CTE8.04
	8.05 Determine the kind of information that can be communicated with hardware outputs. CTE8.05
	8.06 Analyze how simple hardware can be used to develop innovative new products. CTE8.06
	8.07 Define prototype in relation to digital design. CTE8.07
	8.08 Create a prototype of an original game that can be played using a physical computing device. CTE8.08