Skill Struck ®

Skill Struck's alignment to

Texas Essential Knowledge and Skills (TEKs) Standards and Skills for Career and Technical Education

Legend

✅ = Standard aligned

🔹 = Not currently aligned

Standard	Status
130.420. Skills for CTE, Fundamentals of Computer Science: Knowledge and skills (1) Creativity and innovation. The student develops products and generates new understanding by extending existing knowledge. The student is expected to: (A) investigate and explore various career opportunities within the computer science field and report findings through various media; (B) create and publish interactive stories, games, and animations; (C) create and publish interactive animations; (D) create algorithms for the solution of various problems; (E) create web pages using a mark-up language; (F) use the Internet to create and publish solutions; and (G) design creative and effective user interfaces.	✅

130.420. Skills for CTE, Fundamentals of Computer Science: Knowledge and skills (2) Communication and collaboration. The student communicates and collaborates with peers to contribute to his or her own learning and the learning of others. The student is expected to: (A) seek and respond to advice from peers and professionals in evaluating problem solutions; (B) debug and solve problems using reference materials and effective strategies; and (C) publish information in a variety of ways such as print, monitor display, web pages, and video.	✅
130.420. Skills for CTE, Fundamentals of Computer Science: Knowledge and skills (3) Research and information fluency. The student locates, analyzes, processes, and organizes data. The student is expected to: (A) construct appropriate electronic search strategies; and (B) use a variety of resources, including other subject areas, together with various productivity tools to gather authentic data as a basis for individual and group programming projects.	✅
130.420. Skills for CTE, Fundamentals of Computer Science: Knowledge and skills (4) Critical thinking, problem solving, and decision making. The student uses appropriate strategies to analyze problems and design algorithms. The student is expected to: (A) demonstrate the ability to insert applets into web pages; (B) find, download, and insert scripting code into web pages to enhance interactivity; (C) understand binary representation of data in computer systems, perform conversions between decimal and binary number systems, and count in binary number systems; (D) read and define a problem's description, purpose, and goals; (E) demonstrate coding proficiency in a contemporary programming language by developing solutions that create stories, games, and animations; (F) choose, identify, and use the appropriate data type to properly	✅

represent data in a problem solution; (G) demonstrate an understanding of and use variables within a programmed story, game, or animation; (H) demonstrate proficiency in the use of arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division; (I) demonstrate an understanding of and use sequence within a programmed story, game, or animation; (J) demonstrate an understanding of and use conditional statements within a programmed story, game, or animation; (K) demonstrate an understanding of and use iteration within a programmed story, game, or animation; (L) create an interactive story, game, or animation; (M) use random numbers within a programmed story, game, or animation; and (N) test program solutions by investigating valid and invalid data.	
130.420. Skills for CTE, Fundamentals of Computer Science: Knowledge and skills (5) Digital citizenship. The student explores and understands safety, legal, cultural, and societal issues relating to the use of technology and information. The student is expected to: (A) discuss copyright laws/issues and model ethical acquisition of digital information by citing sources using established methods; (B) demonstrate proper digital etiquette and knowledge of acceptable use policies when using networks, especially resources on the Internet and on intranets; (C) investigate measures such as passwords or virus detection/prevention to protect computer systems and databases from unauthorized use and tampering; (D) understand the safety risks associated with the use of social networking sites; (E) discuss the impact of computing and computing related advancements on society; and (F) determine the reliability of information available through electronic	✅

media.	
130.420. Skills for CTE, Fundamentals of Computer Science: Knowledge and skills (6) Technology operations and concepts. The student understands technology concepts, systems, and operations as they apply to computer science. The student is expected to: (A) demonstrate knowledge of the basic computer components, including a central processing unit (CPU), storage, and input/output devices; (B) use operating system tools, including appropriate file management; (C) demonstrate knowledge and appropriate use of different operating systems; (D) demonstrate knowledge and understanding of basic network connectivity; (E) describe, compare, and contrast the differences between an application and an operating system; and (F) compare, contrast, and appropriately use various input, processing, output, and primary/secondary storage devices.	✅
130.421. Skills for CTE, Computer Science 1: Knowledge and skills (1) Creativity and innovation. The student develops products and generates new understandings by extending existing knowledge. The student is expected to: (A) participate with electronic communities as a learner, initiator, contributor, and teacher/mentor; (B) extend the learning environment beyond the school walls with digital products created to increase teaching and learning in the other subject areas; and (C) participate in relevant, meaningful activities in the larger community and society to create electronic projects.	✅
130.421. Skills for CTE, Computer Science 1: Knowledge and skills (2) Communication and collaboration. The student communicates and collaborates with peers to contribute to his or her own learning and the learning of others. The student is expected to:	✅

(A) create and properly display meaningful output; (B) create interactive console display interfaces, with appropriate user prompts, to acquire data from a user; (C) use Graphical User Interfaces (GUIs) to create interactive interfaces to acquire data from a user and display program results; (D) write programs with proper programming style to enhance the readability and functionality of the code by using meaningful descriptive identifiers, internal comments, white space, spacing, indentation, and a standardized program style; (E) improve numeric display by optimizing data visualization; (F) display simple vector graphics using lines, circles, and rectangles; (G) display simple bitmap images; and (H) seek and respond to advice from peers and professionals in evaluating quality and accuracy.	
130.421. Skills for CTE, Computer Science 1: Knowledge and skills (3) Research and information fluency. The student locates, analyzes, processes, and organizes data. The student is expected to: (A) use a variety of resources, including foundation and enrichment curricula, to gather authentic data as a basis for individual and group programming projects; and (B) use various productivity tools to gather authentic data as a basis for individual and group programming projects.	✅
130.421. Skills for CTE, Computer Science 1: Knowledge and skills (4) Critical thinking, problem solving, and decision making. The student uses appropriate strategies to analyze problems and design algorithms. The student is expected to: (A) use program design problem-solving strategies to create program solutions; (B) define and specify the purpose and goals of solving a problem; (C) identify the subtasks needed to solve a problem; (D) identify the data types and objects needed to solve a problem; (E) identify reusable components from existing code;	✅

(F) design a solution to a problem; (G) code a solution from a program design; (H) identify and debug errors; (I) test program solutions with appropriate valid and invalid test data for correctness; (J) debug and solve problems using error messages, reference materials, language documentation, and effective strategies; (K) explore common algorithms, including finding greatest common divisor, finding the biggest number out of three, finding primes, making change, and finding the average; (L) analyze and modify existing code to improve the underlying algorithm; (M) create program solutions that exhibit robust behavior by understanding, avoiding, and preventing runtime errors, including division by zero and type mismatch; (N) select the most appropriate algorithm for a defined problem; (O) demonstrate proficiency in the use of the arithmetic operators to create mathematical expressions, including addition, subtraction, multiplication, real division, integer division, and modulus division; (P) create program solutions to problems using available mathematics libraries, including absolute value, round, power, square, and square root; (Q) develop program solutions that use assignment; (R) develop sequential algorithms to solve non-branching and non-iterative problems; (S) develop algorithms to decision-making problems using branching control statements; (T) develop iterative algorithms and code programs to solve practical problems; (U) demonstrate proficiency in the use of the relational operators; (V) demonstrate proficiency in the use of the logical operators; and (W) generate and use random numbers.	
130.421. Skills for CTE, Computer Science 1: Knowledge and skills (5) Digital citizenship. The student explores and understands safety, legal, cultural, and societal issues relating to the use of technology and	✅

information. The student is expected to: (A) discuss intellectual property, privacy, sharing of information, copyright laws, and software licensing agreements; (B) model ethical acquisition and use of digital information; (C) demonstrate proper digital etiquette, responsible use of software, and knowledge of acceptable use policies; (D) investigate measures, including passwords and virus detection/prevention, to protect computer systems and databases from unauthorized use and tampering; and (E) investigate how technology has changed and the social and ethical ramifications of computer usage.	
130.421. Skills for CTE, Computer Science 1: Knowledge and skills (6) Technology operations, systems, and concepts. The student understands technology concepts, systems, and operations as they apply to computer science. The student is expected to: (A) compare and contrast types of operating systems, software applications, and programming languages; (B) demonstrate knowledge of major hardware components, including primary and secondary memory, a central processing unit (CPU), and peripherals; (C) differentiate among current programming languages, discuss the use of those languages in other fields of study, and demonstrate knowledge of specific programming terminology and concepts; (D) differentiate between a high-level compiled language and an interpreted language; (E) understand concepts of object-oriented design; (F) use local and global scope access variable declarations; (G) encapsulate data and associated subroutines into an abstract data type; (H) create subroutines that do not return values with and without the use of arguments and parameters; (I) create subroutines that return typed values with and without the use of arguments and parameters;	◆

(J) understand and identify the data-binding process between arguments and parameters; (K) compare objects using reference values and a comparison routine; (L) understand the binary representation of numeric and nonnumeric data in computer systems; (M) understand the finite limits of numeric data; (N) perform numerical conversions between the decimal and binary number systems and count in the binary number system; (O) choose, identify, and use the appropriate data types for integer, real, and Boolean data when writing program solutions; (P) demonstrate an understanding of the concept of a variable; (Q) demonstrate an understanding of and use reference variables for objects; (R) demonstrate an understanding of how to represent and manipulate text data, including concatenation and other string functions; (S) demonstrate an understanding of the concept of scope; (T) identify and use the structured data type of one-dimensional arrays to traverse, search, and modify data; (U) choose, identify, and use the appropriate data type and structure to properly represent the data in a program problem solution; and (V) compare and contrast strongly typed and un-typed programming languages.	
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to: (A) identify and demonstrate work behaviors and qualities that enhance employability and job advancement such as regular attendance, attention to proper attire, maintenance of a clean and safe work environment, pride in work, flexibility, and initiative; (B) employ effective verbal and nonverbal communication skills; (C) employ effective reading and writing skills; (D) solve problems and think critically;	✅

(E) demonstrate leadership skills and function effectively as a team member; (F) identify and implement proper safety procedures; and (G) demonstrate planning and time-management skills such as storyboarding and project management, including initiating, planning, executing, monitoring and controlling, and closing a project.	
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (2) The student identifies various employment opportunities in the IT field. The student is expected to: (A) identify job opportunities and accompanying job duties and tasks; (B) research careers of personal interest along with the education, job skills, and experience required to achieve personal career goals; and (C) describe the functions of resumes and portfolios.	✅
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (3) The student uses evolving and emerging technologies to exchange information. The student is expected to: (A) identify and describe functions of various evolving and emerging technologies; (B) send and receive text information and file attachments using electronic methods such as email, electronic bulletin boards, and instant message services; (C) demonstrate effective Internet search strategies, including keywords and Boolean logic, using various available search engines; (D) identify the various components of a Uniform Resource Locator; (E) demonstrate ability to effectively test acquired information from the Internet for accuracy, relevance, and validity; (F) explain issues concerning computer-based threats such as computer viruses, malware, and hacking; and (G) explain issues concerning Internet safety such as identity theft, online predators, cyber-bullying, and phishing.	✅
130.421. Skills for CTE, Principles of Information Technology: Knowledge	✅

and skills (4) The student demonstrates knowledge of the hardware components associated with information systems. The student is expected to: (A) identify major hardware components and their functions; (B) use available reference tools as appropriate; and (C) connect and use a variety of peripheral devices such as mouse, keyboard, microphone, digital camera, and printer.	
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (5) The student demonstrates knowledge of the different software associated with information systems. The student is expected to: (A) differentiate between systems and application software; (B) identify and explain major operating system fundamentals and components such as disk operations, graphical user interface components, and hardware drivers; (C) explain the purpose of file types across software products; (D) demonstrate use of computer numbering systems and internal data representation such as identifying the hexadecimal value of a color; (E) compare and contrast open source and proprietary software; (F) explain use of system management tools; (G) apply proper file management techniques such as creating, naming, organizing, copying, moving, and deleting files; (H) use appropriate file protection and security; and (I) explain the process for discovering, quarantining, and removing viruses from a computer system.	✅
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (6) The student analyzes network systems. The student is expected to: (A) identify hardware associated with telecommunications and data networking such as servers, routers, switches, and network connectors; (B) identify and describe various types of networks such as peer-to-peer, local area networks, wide area networks, wireless, and Ethernet; (C) identify functions of network operating systems; and	✅

(D) explain troubleshooting techniques for various network connection issues.	
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (7) The student applies word-processing technology. The student is expected to: (A) identify the terminology associated with word-processing software; (B) edit a variety of text documents using functions such as pagination, appropriate white space, tab settings, and font style, size, and color; and (C) create professional documents such as memorandums, technical manuals, or proposals using advanced word-processing features.	🔹
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (8) The student applies spreadsheet technology. The student is expected to: (A) identify the terminology associated with spreadsheet software; (B) use numerical content to perform mathematical calculations; (C) use student-created and preprogrammed functions to produce documents such as budget, payroll, statistical tables, and personal checkbook register; (D) identify, generate, and describe the function of comma separated value files; (E) create and analyze spreadsheets incorporating advanced features such as lookup tables, nested IF statements, subtotals, cell protection conditional formatting, charts, and graphs; and (F) perform sorting, searching, and data filtering in documents.	🔹
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (9) The student explores computer programming concepts. The student is expected to: (A) identify the function of compilers and interpreters; (B) explain the difference between the operation of compilers and interpreters; (C) identify various computer languages and how the languages are used	✅

in software development; (D) recognize data representation in software development such as string, numeric, character, integer, and date; (E) identify and explain the concept of algorithms; and (F) describe the flow of a structured algorithm, including linear and iterative instructions such as using a flow chart.	
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (10) The student explores database technology. The student is expected to: (A) identify the terminology associated with database software and database functions; (B) explore the application of databases; (C) identify and explain the purpose and elements of a query language; (D) identify and explain the purpose of fields and records; and (E) describe the process of constructing a query, including multiple search parameters.	◆
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (11) The student applies presentation management technology. The student is expected to: (A) identify the terminology and functions of presentation software; and (B) create, save, edit, and produce presentations incorporating advanced features such as links, hyperlinks, audio, and graphics.	◆
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (12) The student applies design and web publishing techniques. The student is expected to: (A) identify the terminology associated with web page development and interactive media; (B) identify and explain design elements such as typeface, color, shape, texture, space, and form; (C) identify and explain design principles such as unity, harmony, balance, scale, and contrast;	◆

(D) identify and explain common elements of Hyper Text Markup Language (HTML) such as tags, stylesheets, and hyperlinks; and (E) create a web page containing links, graphics, and text using appropriate design principles.	
130.421. Skills for CTE, Principles of Information Technology: Knowledge and skills (13) The student understands and demonstrates legal and ethical procedures as they apply to the use of information technology. The student is expected to: (A) explain and demonstrate ethical use of technology and online resources; (B) adhere to intellectual property laws; (C) explain the concept of intellectual property laws, including copyright, trademarks, and patents and consequences of violating each type of law; (D) examine the consequences of plagiarism; (E) identify and explain unethical practices such as hacking, online piracy, and data vandalism; and (F) demonstrate ethical use of online resources, including citation of source.	✅
130.431. Skills for CTE, Advanced Placement (AP) Computer Science Principles (a) General requirements. Students shall be awarded one credit for successful completion of this course. Recommended prerequisite: Algebra I.	🔹
130.431. Skills for CTE, Advanced Placement (AP) Computer Science Principles (b) Content requirements. Content requirements for Advanced Placement (AP) Computer Science Principles are prescribed in the College Board Publication Advanced Placement® Curriculum Framework: AP Computer Science Principles, published by The College Board.	✅