

Texas Essential Knowledge and Skills for Technology Applications - Computer Science I

Foundations		Information Acquisition	
<p>Demonstrates knowledge and appropriate use of hardware components, software programs, and their connections.</p> <p>1A Demonstrate knowledge and appropriate use of operating systems, software applications, and communication and networking components</p> <p>1B Compare, contrast, and appropriately use the various input, processing, output, and primary/secondary storage devices</p> <p>1C Make decisions regarding the selection, acquisition, and use of software taking under consideration its quality, appropriateness, effectiveness, and efficiency</p> <p>1D Delineate and make necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platform connectivity</p> <p>1E Differentiate current programming languages, discuss the use of the languages in other fields of study, and demonstrate knowledge of specific programming terminology and concepts</p> <p>1F Differentiate among the levels of programming languages including machine, assembly, high-level compiled and interpreted languages</p> <p>1G Demonstrate coding proficiency in a contemporary programming language</p> <p>Uses data input skills appropriate to the task.</p> <p>2A Demonstrate proficiency in the use of a variety of input devices such as keyboard, scanner, voice/sound recorder, mouse, touch screen, or digital video by appropriately incorporating such components into the product</p> <p>2B Use digital keyboarding standards for the input of data</p>	<p>Complies with laws and examines issues regarding use of technology in society.</p> <p>3A Discuss copyright laws/issues and model ethical acquisition and use of digital information, citing sources using established methods</p> <p>3B Demonstrate proper etiquette and knowledge of acceptable use policies when using networks, especially resources on the Internet and intranet</p> <p>3C Investigate measures, such as passwords or virus detection/prevention, to protect computer systems and databases from unauthorized use and tampering</p> <p>3D Discuss the impact of computer programming on the World Wide Web (WWW) community</p>	<p>Uses a variety of strategies to acquire information from electronic resources, with appropriate supervision.</p> <p>4A Use local area networks (LANs) and wide area networks (WANs), including the Internet and intranet, in research and resource sharing</p> <p>4B Construct appropriate electronic search strategies in the acquisition of information including keyword and Boolean search strategies</p> <p>Acquires electronic information in variety of formats, with appropriate supervision.</p> <p>5A Acquire information in and knowledge about electronic formats including text, audio, video, and graphics</p> <p>5B Use a variety of resources, including foundation and enrichment curricula, together with various productivity tools to gather authentic data as a basis for individual and group programming projects</p> <p>5C Design and document sequential search algorithms for digital information storage and retrieval</p>	<p>Evaluates acquired electronic information.</p> <p>6A Determine and employ methods to evaluate the design and functionality of the process using effective coding, design, and test data</p> <p>6B Implement methods for the evaluation of the information using defined rubrics</p>



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Solving Problems		Communication	
<p>Uses appropriate computer-based productivity tools to create and modify solutions to problems.</p> <p>7A Apply problem-solving strategies such as design specifications, modular top-down design, step-wise refinement, or algorithm development</p> <p>7B Use visual organizers to design solutions such as flowcharts or schematic drawings</p> <p>7C Develop sequential and iterative algorithms and codes programs in prevailing computer languages to solve practical problems modeled from school and community</p> <p>7D Code using various data types</p> <p>7E Demonstrate effective use of predefined input and output procedures for lists of computer instructions including procedures to protect from invalid input</p> <p>7F Develop coding with correct and efficient use of expressions and assignment statements including the use of standard/user-defined functions, data structures, operators/proper operator precedence, and sequential/conditional/repetitive control structures</p> <p>7G Create and use libraries of generic modular code to be used for efficient programming</p> <p>7H Identify actual and formal parameters and use value and reference parameters</p> <p>7I Use control structures such as conditional statements and iterated, pretest, and posttest loops</p> <p>7J Use sequential, conditional, selection, and repetition execution control structures such as menu-driven programs that branch and allow user input</p> <p>7K Identify and use structured data types of one-dimensional arrays, records, and text files</p>	<p>Uses research skills and electronic communication, with appropriate supervision, to create new knowledge.</p> <p>8A Participate with electronic communities as a learner, initiator, contributor, and teacher/mentor</p> <p>8B Demonstrate proficiency in, appropriate use of, and navigation of LANs and WANs for research and for sharing of resources</p> <p>8C Extend the learning environment beyond the school walls with digital products created to increase teaching and learning in the foundation and enrichment curricula</p> <p>8D Participate in relevant, meaningful activities in the larger community and society to create electronic projects</p> <p>Uses technology applications to facilitate evaluation of work, both process and product.</p> <p>9A Design and implement procedures to track trends, set timelines, and review/evaluate progress for continual improvement in process and product</p> <p>9B Use correct programming style to enhance the readability and functionality of the code such as spacing, descriptive identifiers, comments, or documentation</p> <p>9C Seek and respond to advice from peers and professionals in delineating technological tasks</p> <p>9D Resolve information conflicts and validate information through accessing, researching, and comparing data</p> <p>9E Create technology specifications for tasks/evaluation rubrics and demonstrate that products/product quality can be evaluated against established criteria</p>	<p>Formats digital information for appropriate and effective communication.</p> <p>10A Annotate coding properly with comments, indentation, and formatting</p> <p>10B Create interactive documents using modeling, simulation, and hypertext</p> <p>Delivers the product electronically in a variety of media, with appropriate supervision.</p> <p>11A Publish information in a variety of ways including, but not limited to, printed copy and monitor displays</p> <p>11B Publish information in a variety of ways including, but not limited to, software, Internet documents, and video</p>	<p>Uses technology applications to facilitate evaluation of communication, both process and product.</p> <p>12A Write technology specifications for planning/evaluation rubrics documenting variables, prompts, and programming code internally and externally</p> <p>12B Seek and respond to advice from peers and professionals in evaluating the product</p> <p>12C Debug and solve problems using reference materials and effective strategies</p>

