Computer Science I - 2004

Strands	Courses	The Learner will be able to...
Microsoft Windows XP		
Basics	Computer Science I	start and exit windows, use the mouse and keyboard, and understand windows and menus.
Desktop, Start Menu, and Taskbar	Computer Science I	identify and use the desktop, start menu, and task bar.
My Computer, Explorer: Files and Folders	Computer Science I	create and manage files and folders with My Computer and Windows Explorer.
Copying and Moving Files: Cut, Copy, and Paste	Computer Science I	understand cut, copy, and paste to copy and move files between folders.
Saving and Printing Files	Computer Science I	save and print with Windows 95 applications.
Windows Paint, NotePad, and WordPad	Computer Science I	apply the Windows 95 concepts to use programs like Windows Paint, NotePad, and WordPad.
Multimedia	Computer Science I	understand and use the Media Player, Sound Record, CD Player, and Imaging programs.
History of Computers		
Early electronic computers	Computer Science I	identify the people and technology leading up to the first generation of computers in the fifties.
Four generations of computers	Computer Science I	compare and list the characteristics of the four generations of computers.
Computers in society	Computer Science I	understand ways in which computers are used daily in society.
Internet		
Email	Computer Science I	perform the operations of sending and receiving email.
Internet	Computer Science I	use an internet browser and use various search engines to find information on the web.
Computers and Data Processing		
The computer's power	Computer Science I	identify the characteristics (speed, accuracy, and memory) that give computer's an advantage over human computation.

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Strands	Courses	The Learner will be able to...
Computer operations	Computer Science I	list and describe the operations (arithmetic, comparison, and storage/retrieval) a computer performs.
Fundamentals of data processing	Computer Science I	distinguish between data and information, describe the processing flow of data, contrast batch and interactive processing, and understand the concepts of field, record, file, and data base.
Number Systems	Computer Science I	represent numbers using the decimal, binary, octal, and hexidecimal number systems.
Computer codes	Computer Science I	represent alphanumeric characters in ASCII code.
Word Processing - Microsoft Word 2002		
Margins, line spacing	Computer Science I	create and change margins and line spacing in a document.
Multi-page documents	Computer Science I	create headers, footers, and footnotes in multi-page documents.
Spell Checker, Thesaurus, and Grammar Checker	Computer Science I	correct spelling and grammar using the word processing tools.
Tables and Images	Computer Science I	use tables and images in documents.
Computer Systems and Hardware		
Central processing unit	Computer Science I	list and describe the parts of the central processing unit.
Primary Storage	Computer Science I	distinguish between RAM and ROM and describe the three types of primary storage.
Types of computer systems	Computer Science I	differentiate between the four major groupings of computers.
Microprocessor basics	Computer Science I	list and define the terms that are used to classify a microprocessor.
Electronic Work Sheets: Microsoft Excel 2002		
Cells, rows, columns, numbers, text	Computer Science I	identify a cell, row, and column and enter numbers and text into a spreadsheet.
Formulas	Computer Science I	create simple mathematical formulas to summarize data.

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Strands	Courses	The Learner will be able to...
Graphs	Computer Science I	create a graph from a list of data.
Peripheral Hardware		
Secondary storage	Computer Science I	identify and characterize the types of secondary storage media.
Input devices	Computer Science I	describe various input devices used with computers and differentiate between online and offline entry.
Output devices	Computer Science I	distinguish between impact and non-impact printer; identify some special-purpose output devices.
Selecting a computer system	Computer Science I	identify and discuss what characteristics to look for when buying a computer system.
Electronic Data Base - Microsoft Access 2002		
Data base basics		
Creating a data base		
Managing a data base		
System Software		
Application and System Software	Computer Science I	distinguish between application and system software.
Operating systems	Computer Science I	define an operating system, identify the components of an operating system, and list the characteristics of specific operating systems.
Computer languages	Computer Science I	list the differences between machine language, assembly language, and high-level languages.
High-level languages	Computer Science I	discuss the characteristics of various high-level languages.
CPU efficiency	Computer Science I	explain how multiprogramming, virtual storage, and multiprocessing increase a CPU's efficiency.
Information systems	Computer Science I	identify and describe the components of an information system.
Communications		
Communication channels	Computer Science I	identify and describe four types of communication channels.

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Strands	Courses	The Learner will be able to...
Modems	Computer Science I	understand how a modem works.
Computer Networks	Computer Science I	explain how local area networks operate, identify the components of a network, understand the terms LAN and WAN and their applications.
Computer Careers and Ethics		
Computer careers	Computer Science I	list and descrube the five categories of computer careers and the jobs within each category.
Computer Ethics	Computer Science I	understand the relationship of ethics to responsible compute use.
Computer crime	Computer Science I	discuss the four categories of computer crime and laws that protect privacy and promote responsible computer use.
Presentation Graphics - Microsoft PowerPoint 2002		
Creating a slide	Computer Science I	
Images and sound	Computer Science I	
Multimedia Applications		
Imaging	Computer Science I	resize, crop, and manipulate images.
Sound	Computer Science I	integrate sound into presentations.
Animation	Computer Science I	use an animator to animate text and images.
Image sources	Computer Science I	use digital cameras, video capture, and scanners to transfer images to the computer.
Homepages	Computer Science I	develop a homepage for the internet.
The Programming Process		
Structured programming	Computer Science I	define structured programming and list its objectives.
The programming process	Computer Science I	list the five steps in the structured programming process.
Algorithms	Computer Science I	determine the input and output for simple programming problems and list the steps of the problem.
Program structures	Computer Science I	describe the three types of program structures.
Flowcharting	Computer Science I	design and document a solution using a flowchart.

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Strands	Courses	The Learner will be able to...
Introduction to QBASIC		
Variable names and constants	Computer Science I	understand variables and constants and differentiate between numeric and string.
Assignment statements	Computer Science I	use assignment statements in simple programs.
PRINT statement	Computer Science I	display data on the computer screen using PRINT.
Data Entry		
INPUT statement	Computer Science I	explain how the INPUT statement works and write prompts to receive input from the keyboard.
READ-DATA statements	Computer Science I	show how the READ statement assigns values to variables, prepare a data list in a DATA statement, and explain how the RESTORE statement works.
Methods of data entry	Computer Science I	compare the three methods of data entry - the assignment statement, INPUT, and READ/DATA.
Output		
Using punctuation with PRINT	Computer Science I	use commas to print to predefined zones and semicolons to format printing.
TAB statement	Computer Science I	use TAB to begin printing in a specific column.
Formatted printing with PRINT USING	Computer Science I	write a PRINT USING statement to format a line with dollar signs, decimal places, and columns.
Control Statements and Looping		
IF/THEN statements	Computer Science I	show how the IF/THEN statement is used for conditional transfers.
Loops	Computer Science I	show how trailer values and counters are used to control looping and use DO-WHILE, DO-LOOP, AND FOR-NEXT loops.
Accumulating totals	Computer Science I	explain how a total is accumulated within a loop.
Subroutines	Computer Science I	Explain how a subroutine works.
Library and User Functions		
Numeric library functions	Computer Science I	describe the purpose of each mathematical function and write expressions that will round numbers to

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Strands	Courses	The Learner will be able to...
		any degree of accuracy.
Random numbers	Computer Science I	write expressions to generate a random number within any range.
User-defined functions	Computer Science I	write a user-defined function.
String functions	Computer Science I	describe the purpose of string functions and write expressions that will find the length of a string, concatenate two strings, and compare two strings.
Graphics and Sound		
Graphic modes and color	Computer Science I	describe the graphic modes available on the computer and change the graphic mode.
Graphics	Computer Science I	use statements to change color, draw points, lines, circles on the screen.
Sound	Computer Science I	use statements to create sounds and use the PLAY statement to create a song.
Animation	Computer Science I	use statements to move objects on the screen to perform simple animation.
Arrays		
One-dimensional arrays	Computer Science I	define a one-dimensional array, reference various elements in the array, and use FOR/NEXT loops to read values into and print values from the array.
Two-dimensional arrays	Computer Science I	define a two-dimensional array, reference various elements in the array, and use FOR/NEXT loops to read values into and print values from the array.
Bubble sort	Computer Science I	write a numeric and alphabetic bubble sort.
File Processing		
File processing	Computer Science I	explain the basic steps in file processing.
Creating a file	Computer Science I	use statements to open a file, write to a file, read from a file, and close a file.

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Strands **Courses** **The Learner will be able to...**

COMPUTER SCIENCE 1 BENCHMARKS

1. Computer Basics

Benchmarks

Students understand why it is important to be computer literate.
Students define a computer system and identify its components.
Students explain what makes computers so powerful.
Students understand security, privacy, and ethnical issues involved with computer hardware and software.

2. The Components in the System Unit

Benchmarks

Students identify the components in the system unit and explain their functions.
Students describe the four steps used by the CPU to process data.
Students understand how computers store data as a series of bits.
Students understand the binary, octal, and hexadecimal number systems and convert between them.
Students describe expansion slots, buses, and ports.
Students differentiate between the various types of memory.

3. Input Devices

Benchmarks

Students identify and describe various input devices, including keyboard and mouse.
Students understand source automation (scanners and other reading devices).
Students understand audio and video input.

4. Output Devices

Benchmarks

Students identify and describe various output devices.
Students describe different display devices and the factors that affect their quality.
Students describe different types of printers (including plotters).

5. Storage

Benchmarks

Students differentiate between storage and memory.
Students identify various types of storage media and storage devices.
Students explain how data is stored on various storage media (hard drive, CD-ROM, DVD).

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Strands **Courses** **The Learner will be able to...**

COMPUTER SCIENCE 1 BENCHMARKS (CONTINUED)

6. Communications and Networks

Benchmarks

Students define the components and software required for electronic communications.
Students identify various types of transmission media.
Students explain the difference between a LAN (local area network) and a WAN (wide area network).
Students identify and describe the components in a network.

7. Applications

Benchmarks

Students understand and use the Internet and email.
Students create a multi-page word processing document demonstrating formatting techniques, headers/footers, page numbering.
Students create a spreadsheet demonstrating formatting, formulas,
Students demonstrate database skills (tables, forms, queries, and reports).
Students create a presentation using presentation graphics software.
Students use HTML/Java Script, imaging, and web authoring software to create web pages.