Foreword

Business Computer Information Systems is a ten-unit high school elective that explores the use of technology applications in both business and personal situations. Occupations have transitioned from those that primarily produced things to those that manipulate and manage information. Whether it is at home, in a factory, at a school, for a business, or in an office, almost everyone today uses many forms of technology on a daily basis. This course will explore the software applications and information technologies that everyone is likely to use in business situations.

In this course the students will learn computer terminology, hardware, software, operating systems and information systems that relate to the business environment. The units will concentrate on learning the standard applications of word processing, spreadsheets, database management and graphical presentation packages. In addition, skills in personal and interpersonal communications and in communication technologies will be studied.

The course is intended to help students arrive at the following understandings:

- Effective communication skills and productive work habits can increase employees’ success.
- Technology solutions can help employees be more productive and effective.

Keyboarding is a stated prerequisite for this course. While there are some keyboarding reviews in the course, there is no keyboarding instruction.

Business Computer Information Systems covers topics from TEKS §120.23 and §120.64.

Business Computer Information Systems contains the following units:

- Unit 1 — Communication Skills
- Unit 2 — Business Technology
- Unit 3 — Word Processing
- Unit 4 — Spreadsheets
- Unit 5 — Databases
- Unit 6 — Telecommunications Technology
- Unit 7 — Desktop Publishing Technology
- Unit 8 — Presentation Technology
- Unit 9 — Computer Networks
- Unit 10 — Computer Operating Systems

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Unit 2: Business Technology

Introduction

This unit will focus on the various types of technology used in business. Business professionals are continuously looking for ways to improve the work processes at their jobs. First, you’ll investigate some of these technologies that make tasks more efficient and effective. Then you’ll look at how to select the appropriate hardware and software for specific tasks. Finally, you’ll explore emerging technologies.

Your goals for the unit include the following:

- Identify and explain the functions of various types of technology, hardware, and software used in business.
- Select appropriate technology to address business needs.
- Explore functions of emerging technologies.

The objectives for this unit include the following:

- Explain the functions of various business technology, hardware, and software.
- Classify items as hardware or software.
- Select hardware or software most appropriate for specific business tasks.
- Describe emerging technologies.
- Interview professionals to gather information.
- Present information in a chart.
I. Overview of Business Technology

Hardware versus Software

Have you ever tried to purchase electronics? Perhaps you’ve read a description in an advertisement for a camera or a cell phone. If so, you may have seen terms like mega pixels or gigabyte in the description. If you didn’t know what these words meant, it would be hard for you to understand the description and make an educated decision about your purchase.

This lesson will focus on some common technical vocabulary. You’ll look at the differences between hardware and software and how they work together. You’ll accomplish the following during this lesson:

Objectives:

- Classify an item as hardware or software.

Vocabulary:

CPU - central processing unit or part inside the body of the computer that enables the computer to function; sometimes referred to as the brain of the computer.

hard drive - component in the body of the computer that stores all your files and folders.

hardware - physical parts of the computer or technical equipment.

Internet - interconnected computer networks throughout the world that everyone may use.

laptop - a small mobile computer.

motherboard - the main board in the body of the computer. Chips and other components reside there.

software - computer program or a set of instructions for the hardware to perform.

spreadsheet - software that acts like a calculator and is frequently used for numbers and money.

word processor - software used to create printable material.

Hardware

Most types of businesses make use of two types of technology—hardware and software. The term hardware refers to the physical devices that you can see and touch. The keyboard, mouse, and monitor are all examples of hardware. A laptop computer is hardware. And there is hardware inside the body of the computer including the CPU, hard drive, and motherboard.

In addition, scanners, printers, and CD-ROM drives are all hardware. Networking devices such as a modem is a physical device and therefore is also hardware. Peripheral devices such as a microphone, track ball, speakers, and a game controller are hardware.

In addition to the hardware you see near a computer, specific hardware may be used by workers in certain professions. For example, a videographer uses a video camera to capture action on video. A video camera is technical equipment, which is also considered hardware. For another example, an electrical engineer uses a digital multi-meter, which is a physical device used to measure electrical current. Therefore, the digital multi-meter is also hardware. A person delivering packages uses a portable tablet. The person receiving the package may sign the tablet and the signature is sent to the office. Is the portable tablet hardware? Yes.

In the following graphic, move your mouse to all pieces of hardware.

Please refer to the media CD to view the Hardware graphic.

Software

Hardware may seem to work like magic; for example, when you type the letter “a” on the keyboard, an “a” appears on the screen. Here’s what’s actually happening: Hardware, like your keyboard, needs special instructions called software to perform tasks. When
you type the "a," special keyboard software gives the computer the instructions it needs to make the "a" appear. These instructions are called computer programs, known as software. Software is created from computer code, written by computer programmers or software developers. Software is written in a programming language, of which there are thousands of different types. Because a computer only does exactly what it is told to do, their programmers must make sure that there are no mistakes in these instructions or programs. The picture below gives you a glimpse of what a programming language looks like.

Types of Software

There are three different types of software: system software, programming software, and application software. System software helps run the computer hardware. For example, your mouse needs instructions in order to move around on your screen in response to your hand movements. There is system software to help run the mouse.

Programming software provides tools for programmers to help them write programs or other types of software. A software developer creating Web pages may use a program designed to help create these Web pages. Microsoft® FrontPage® and Macromedia® DreamWeaver® are two examples.

Application software helps the computer user complete specific tasks, such as writing a report, watching a video, or keeping track of a budget. Businesses rely heavily on application software. Application software is often referred to simply as applications or programs.

Some common applications include word processors and spreadsheets. A word processor allows you to type, edit, and format a written document. You may also print or save the document for further editing. If you wanted to send a business letter or memo, you would use a word processor.

A spreadsheet is software that is used for numbers or money. If you wanted to keep track of long lists of numbers and perform calculations, you would use a spreadsheet. An accountant may use a spreadsheet to track expenses or create a budget.

The word processor and spreadsheet are just two examples of common application software. There are many different types of application software. Sometimes, software is custom software, which means it was developed for a specific company and to perform specific tasks.

Working Together

How do software and hardware work together? Generally, software needs to be installed, or loaded on the computer’s hard drive. Some software may come preloaded on a computer. Other software may be purchased on a CD. After inserting the CD, the user follows some simple steps to complete the installation. Other software may be downloaded from the Internet.

Once the software has been installed, it may need to be opened or started. The software and hardware interact when the computer user types on the keyboard or uses the menu to give commands. For example, the user clicks twice on the mouse and the software opens. The software and hardware are interacting. For another example, after the computer user opens word processing software and types some text, he may use the keyboard or the mouse to give the command to “save.” When this happens, the software gives instructions for the new file to be saved on the hard drive. In other words, the software is giving instructions to the hardware.

Now that you have had a chance to think about the difference between hardware and software, let’s classify the following items. You will be shown a list of items. If you think an item is hardware, drag and drop it into the “Hardware” column. But if you think an item is software, drag and drop it into the “Software” column.

Please refer to the media CD to do the Hardware and Software activity.

Let’s Review!

Remember, hardware is a physical part of the computer or technical equipment. Some examples of hardware are mouse, speakers, camera, monitor, and CPU. Computer programmers write software programs in a computer language to provide the instructions necessary for hardware to perform a task. In other words, software programs are the directions a computer follows to complete certain operations. Examples of software that were discussed in this lesson are a word processor and a spreadsheet.
1.1 An example of software is a______.
A. spreadsheet
B. mouse
C. track ball
D. printer

1.2 An example of hardware is a______.
A. database
B. spreadsheet
C. monitor
D. program used to enhance photos

1.3 Match the term with the appropriate definition.

_____1. motherboard A. the main board in the body of the computer
_____2. CPU B. small mobile computer
_____3. system software C. central processing unit
_____4. program D. instructions for the computer written in a programming language
_____5. laptop E. software that helps run the computer hardware

1.4 A telephone repair technician uses a meter to measure voltage on a phone line. This meter is an example of ______.
A. hardware
B. software

1.5 An administrative assistant types a document, saves, and prints. The assistant is using ______.
A. hardware
B. software
C. hardware and software
You listened to a song on your computer. Did you use hardware or software? Explain.

You've almost certainly observed people using technology at work. Perhaps you deposited a check at the bank, and the bank teller entered information on a keyboard and printed a record of the transaction. You may have also seen a retail assistant in a department store use a hand-held scanner to scan tags on merchandise. Once the data was scanned, the price displayed on the monitor.

Is there another purpose for scanning the tags? Yes, the data is also sent to a computer system and may be used to track current merchandise. For example, there were five shirts, now one has been purchased, so the store currently has four. A buyer for this store can access this information and will make decisions based on it.

This lesson will focus on hardware and software used by business professionals. You will accomplish the following during this lesson:

Objectives:
- Explain how technology can help a worker be more efficient and effective
- Match functions to the correct software and hardware

Vocabulary:
- CAD - Computer Aided Design or the use of software to aid in technical drawings and models.
- computer network - group of computers that are interconnected in order to share information or documents.
- data - information processed or stored by the computer.
- database - software that organizes a collection of data.
- diagramming software - software used to draw a diagram or flow chart.
- e-mail - electronic mail or method used to write, send, receive and store written communication.
- fax machine - technology used to transfer copies of documents over the telephone network.
- GPS - Global Positioning System or a receiver that transmits precise location, direction, local time and speed by use of a system of satellites.
Technology makes many tasks for many different businesses more efficient. For example, a photographer shooting on film would need to finish a roll of film, bring film into a photo lab, and wait at least one hour for the photo to be developed. A digital photographer today can take the photo, connect the camera to a computer, and e-mail the photo within minutes.

Further examples include:

- **computer networks** allowing co-workers to access and share documents quickly;
- **Global Positioning System (GPS)** helping delivery drivers locate a destination;
- **hand-held scanners** making it easier for sales associates to scan items;
- **Computer Aided Design (CAD)** software reducing the time it takes for an architect to design a building.

Not only does technology help businesses become more efficient, but it also can help the people who work for the businesses be more effective. Let's say your friend's dad decides to buy a new house. He hires a real estate agent and asks him to find a house that costs between $300,000 and $350,000 and has a pool. Today's technology allows that agent to pull out his laptop and access an Internet database listing thousands of homes for sale. He can use keywords to narrow his search down to just the set of houses that fit the buyer's interests, all in just a few minutes. The database gives the agent good information, making him more effective.

Other examples of how technology has helped professionals to become more effective include:

- graphic software that gives graphic designers tools to create one-of-a-kind art;
- the World Wide Web, which provides another medium for advertising and therefore reaches a wider audience;
- Web searching, which gives people easy access to information, allowing them to give more knowledgeable presentations;
- Internet sites that allow financial analysts to access up-to-the-minute stock market information.

Let's take a closer look at commonly used technologies and their functions.

**Word Processor**

A word processor is simply a tool used to type, edit, save, and print any type of text. People use a word processor to write business letters, publish books, and create reports. It is used in many different professions. A teacher may use a word-processing program to type worksheets or instructions. A project manager may use a word processor to document information about a project. Some useful features of the word processor include spell check, creating tables, inserting images, and moving text.

**Spreadsheet**

A spreadsheet is software used for numbers and financial information like a budget. When you open a spreadsheet, your screen will have lines running horizontally and vertically. It looks like a grid or a piece of graph paper. What makes a spreadsheet so useful is
its ability to do math for you. If the user enters a formula to add many numbers, the spreadsheet calculates the answer. The calculation may be simple or complex. For example, an office employee may use a formula to subtract the office expenses from the account balance. A loan officer may use a more complex formula to calculate the monthly payment for a car loan. The spreadsheet will make many types of calculations such as addition, subtraction, multiplication, division, and finding averages.

**Database**

A database is application software that is very useful in organizing large amounts of information, also known as data. A database may hold collections of many different types of data. For example, a company with a large warehouse may organize the contents of the warehouse in a database. When something new enters the warehouse, information about that item such as description, price, ID number, and location will need to be added to the database. When something leaves the warehouse, it is reflected in the database. If a business receives a phone call to see if Widget A is in stock, you can imagine how long it would take to physically search a warehouse the size of a football field filled with thousands of items. With the use of a database, the employee may enter “Widget A” into a field on the screen to find if it is in stock and where it is located in the warehouse. In such a situation, the employee may not need to be physically present to perform this search; he may be halfway around the world from the actual warehouse.

Another example of a database is the home listings for real estate agents. This large database contains lists of houses and their characteristics such as number of bathrooms, number of bedrooms, garage, pool, and square footage. Another type of business that uses a database is a bookstore. This database may list books currently in the store, books due to arrive, and books that may be special-ordered. Some bookstores allow the customers to search the database by entering the author’s name or title of the book in a query. The results of the query provide further information about the book, including whether it is in the store and the section in which it may be found.

**E-mail**

In today’s global workforce, electronic communication tools have become very important. E-mail is just what it sounds like—mail sent electronically. The electronic mail includes written information, photographs, and attached documents. E-mail makes it possible for people to work closely with colleagues thousands of miles away. The information in an e-mail may be sent to one person or many. After reading an e-mail, you may reply to the e-mail, forward it to other recipients, or save it. It may also be helpful to organize saved e-mails into folders for quick retrieval.

**Presentation Software**

Presentations have become essential in business. Oral presentations are typically accompanied by a slide show, which displays key text and visuals such as a graph, chart, or graphic. As the presenter starts giving information, the first slide or screen appears. The presenter will press a key to move on to the second slide, and so on.

Slide shows allow presenters to pace information. For example, let’s say the purpose of a presentation is to provide company management with information about a project. In that case the first slide might have the title of the project. The second slide could communicate the project’s purpose. Subsequent slides might have the list of employees working on the project and how close the project is to completion.

**Image-Editing Software or Graphics Software**

How many graphics do you estimate you have already seen today? You’ll find them on television; in newspapers, magazines, and textbooks; on the World Wide Web; on billboards; and in many more places. In a newspaper or textbook, their purpose is to supplement text in an effort to help readers to understand a particular concept. Graphics are also used to attract readers and, of course, to sell products.

Typically, graphics are not drawn with pen and paper, but with graphics software. The graphics software enables an individual to create or change visual images on a computer. Graphic designers may start from scratch using a draw or paint program. Starting with a blank document or canvas, an individual can create a graphic with the program’s tools such as a paint brush, rectangle tool, pencil, magnifier, and selection tool. Image-editing software may be used to enhance a photograph or combine several photos and graphic elements into a new graphic.

**CAD**

Computer Aided Design (CAD) is used to design many different types of products. CAD enables designers to lay out or draw the product on the screen, print it out, and save it for future editing. For example, CAD is extensively used in the design of tools and machinery. CAD is used in the drafting and design of all types of buildings, from small residential houses to the largest commercial and industrial structures such as hospitals and factories. Professionals from many disciplines use CAD including electrical engineers, mechanical engineers, ship builders, construction engineers, and civil engineers. The products designed in CAD may be very large or very small. CAD may be used in the design of a tunnel, sewer system, car, digital circuit, and much more.
Scanner

A scanner is hardware that makes an electronic copy of an image, an object, text, or a bar code. Earlier, we looked at hand-held scanners that scanned tags on merchandise. In addition, flatbed scanners are used to scan pages of text or a photograph. A business that retouches old photographs would use a flatbed scanner to scan the photograph. Once the image is scanned, an individual may use image-editing software to touch up scratches.

Fax Machine

A fax machine may be used to send documents over telephone wires to another fax machine. If a lawyer needed a client to sign a legal document such as a will, he or she may fax the contract to another fax machine near the client. The client would sign the contract and fax it back to the lawyer’s fax machine.

GPS

Global Positioning Systems work off a system of satellites to provide us with our location, time, speed, and the directions to our destination. Since the GPS has become a widely used aid to navigation, people such as delivery drivers and land surveyors benefit from its use. In addition, because a GPS provides a precise time reference, it is used in scientific study of earthquakes and synchronization of telecommunication networks.

As you can see, there are a variety of technologies used in the workforce. Further examples of technology include:

- Portable Document Format (PDF) or a common format used to send documents electronically. This type of document may be opened and read but not changed. Adobe® Acrobat® is used to convert documents into PDF format and Adobe® Reader® is used to open and read a PDF document;
- Web browsers are used to browse the World Wide Web and look at Web pages. Two common Web browsers are Internet Explorer® and Firefox®.
- Scheduling software is used to add meetings to a calendar so that the workers may access their schedules or send and receive meeting notices. Microsoft® Outlook® is scheduling software, widely used for scheduling meetings, e-mailing, and organizing contact information.
- A projector is used to project the computer screen onto a much larger screen so that many people may view the content at a meeting;
- Computer network used to interconnect computers in order to share information or documents;
- Diagramming software used to draw a diagram or flow chart. Microsoft® Visio® is a commonly used diagramming software.

Now that you are familiar with a variety of technologies, let's match each function to the appropriate technology. In the exercise below, a table lists technology functions in the left column. You will be shown a list of items. Find the function that it matches and drag and drop to the appropriate place in the Technology column.

Please refer to the media CD to complete the Technology and Function activity.

Lets Review!

This lesson has presented many technologies and their functions. Businesspersons use many types of hardware including a scanner, fax machine, cell phone, and GPS. In addition, they use many types of software including word processors, spreadsheets, databases, image-editing software, and presentation software. All of these technologies are tools that help businesses get the job done better or faster.
1.7 Presentation software allows users to_____.
A. send a message electronically
B. create a technical drawing of a building
C. scan a bar code
D. create a slide show

1.8 CAD helps professionals to_____.
A. create a technical drawing
B. give directions to a new location
C. calculate the interest rate of a new car loan
D. organize a collection of data

1.9 Image-editing software is used to_____.
A. create a printed document for sending on a fax machine
B. enhance a photograph
C. design a floor plan of a building
D. filter through large amounts of data

1.10 A database is used to_____.
A. send written communication electronically
B. create an expense budget
C. organize a large collection of information
D. develop Web pages

1.11 Ally typed a business letter. She used a_____.
A. database
B. scanner
C. word processor
D. spreadsheet

1.12 In 3–5 sentences, describe how technology helps business professionals to be more efficient.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Teacher Check: _____________ Initial _____________ Date
Self Test 1: Overview of Business Technology

1.01  True/False  Software refers to the physical parts of a computer.

1.02  Multiple Choice  An example of hardware is a_____.
   A. word processor  
   B. database  
   C. mouse  
   D. e-mail

1.03  Multiple Choice  Which of the following best describes the difference between software and hardware?______
   A. Hardware is the outside of the computer; software is the material on the inside of a computer.
   B. Hardware is the material produced by the computer like a business letter; software is the information in the computer.
   C. Hardware is the equipment; software is the instructions given to the equipment in order for the equipment to perform a task.
   D. Software is the equipment; hardware are the programs that run the software.

1.04  Multiple Choice  An office employee working in a payroll department uses a customized program to log hours employees have worked. The customized program is an example of _____.
   A. hardware  
   B. software

1.05  Matching  Match the term with the appropriate definition.

_____ 1. scanner  A. technology used to transfer copies of documents over the telephone network
_____ 2. GPS  B. a receiver that transmits a precise location
_____ 3. fax machine  C. device that is connected to a computer so that many people may view the contents on a computer screen
_____ 4. projector  D. a device that scans images
1.06 Match the term with the appropriate definition.

_____1. image-editing software   A. software used to enhance photographs
_____2. PDF   B. software that organizes a collection of information
_____3. presentation software   C. software used to create a slide show
_____4. CAD   D. software used to create technical drawings
_____5. database software   E. Portable Document Format

1.07 The part of the computer that performs the calculations that enable the computer to function and is sometimes referred to as the brain of the computer is the_____.

A. ROM
B. hard drive
C. monitor
D. CPU

1.08 Sam wanted to open a file that he saved yesterday. Which component inside the computer stores this file?_____

A. hard drive
B. fax machine
C. CPU
D. motherboard

1.09 Software is giving instructions so that text is displayed on the monitor. This software is an example of_____.

A. application software
B. programming language
C. system software
D. programming software

1.010 Carol typed a memo to distribute to everyone in her department. To create this memo, she used a_____.

A. spreadsheet
B. word processor
C. fax machine
D. projector
1.011 True/False Web browsers are used to browse the World Wide Web.

1.012 Multiple Choice

A group of computers that are interconnected in order to share information or documents is called a______.  
A. system of computers  
B. computer network  
C. graphics software  
D. modem

1.013 Multiple Choice

Steven is in a meeting and he is sharing a graph on his monitor with fifty other people. So that the others do not need to crowd around his laptop, what piece of equipment is he using?______  
A. scanner  
B. GPS  
C. fax machine  
D. projector

1.014 Paragraph

In 3–5 sentences, describe how technology may help professionals be more effective. Give examples of technology that these professionals would use.

_________________________________________________________________
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_________________________________________________________________

Score: ___________ Teacher Initial: ___________ Date: ___________