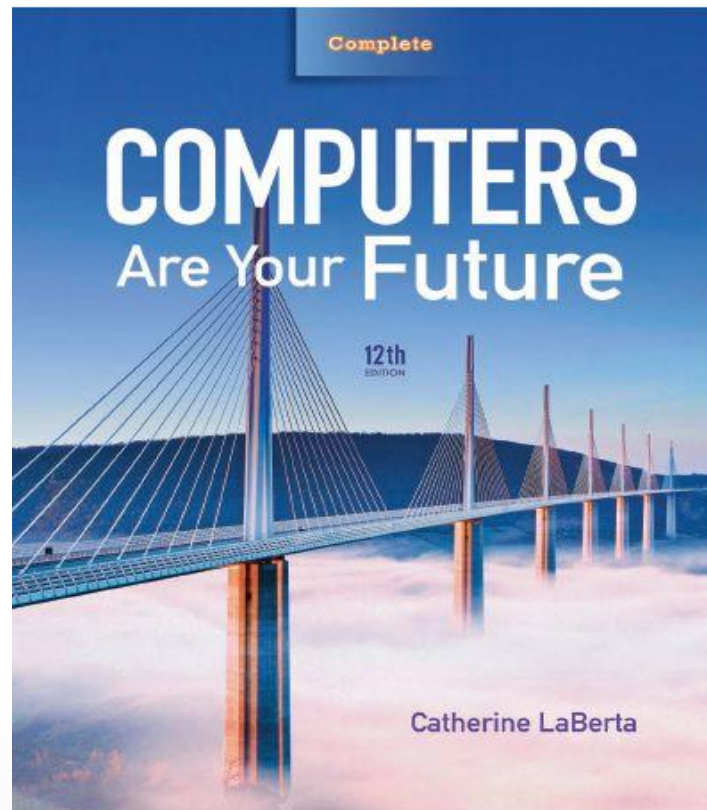


Computers Are Your Future

Twelfth Edition

Chapter 1: Computers and You



Computers and You



Objectives

- Define the word *computer* and name the four basic operations that a computer performs.
- Describe the two main components of a computer system: hardware and software.

Objectives

- Provide examples of hardware devices that handle input, processing, output, and storage tasks.
- Give an example of the information processing cycle in action.
- Discuss the two major categories and the various types of computers.

Objectives

- Explain the advantages and disadvantages of computer use.
- Recognize the ethical and societal impacts of computer usage.
- Discuss how computers affect employment.
- List ways to be a responsible computer user.

Computers: Yesterday, Today, and Tomorrow

- **Computers**

- Integral to our daily lives
- Millions use computers daily.

- **Applications**

- Word processors
- Internet
- Online banking
- Online classes
- GPS systems
- ATM machines
- Mobile phones
- Weather prediction

Computers: Yesterday, Today, and Tomorrow

- **Computers (con't.)**

- Used at:

- Home
 - Work
 - School

- Embedded into:

- Cars
 - Phones
 - Cameras

Computers: Yesterday, Today, and Tomorrow

- **History of Computers 1939–1981**
 - Hewlett-Packard founded–1939
 - ENIAC unveiled (increased computing speed by 1,000x)–1946
 - Commodore Business Machines founded–1965
 - Xerox opens Palo Alto Research Center–1970
 - Steve Wozniak designed the Apple I–1976
 - IBM introduced the PC–1981

Computers: Yesterday, Today, and Tomorrow

- **History of Computers 1990–2009**

- HTML developed; World Wide Web born–1990
- Netscape and Yahoo founded–1994
- Microsoft releases Windows 95–1995
- Microsoft's Bill Gates resigns–2000
- YouTube founded; Windows Vista announced–2005
- Amazon releases the Kindle; Google releases Android–2007
- Microsoft releases Windows 7–2009

Computers: Yesterday, Today, and Tomorrow

- **Before computers**

- There were

- No telephone answering machines
 - No handheld calculators
 - No fax machines
 - No personal computers

- People

- Wrote letters by hand or with a typewriter
 - Kept track of data and numbers in ledgers
 - Communicated in person or over the telephone

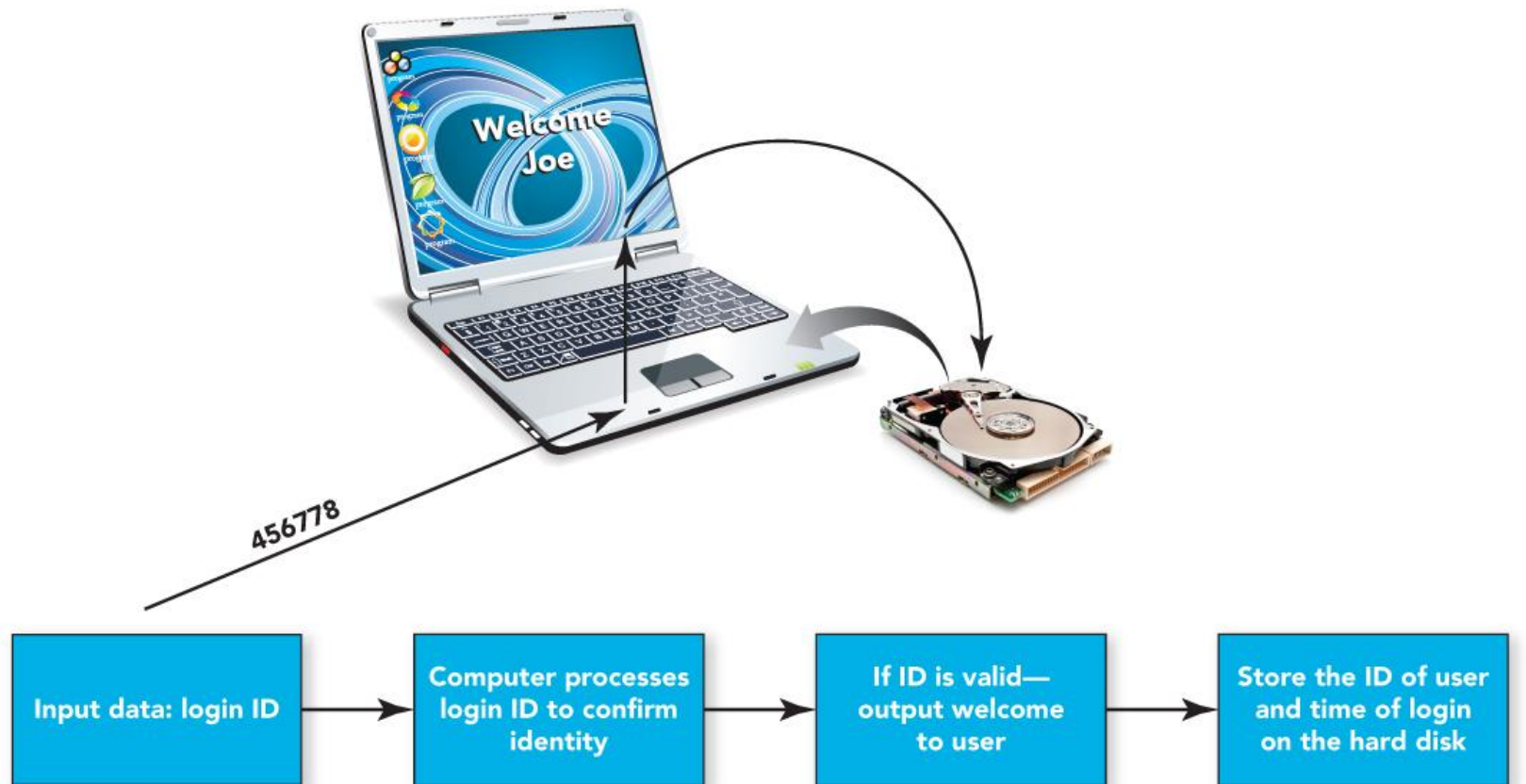
Computer Fundamentals

- **Computer**—device that performs the information-processing cycle
- **Information-processing cycle**
 - Consists of four basic operations:
 - Input
 - Processing
 - Output
 - Storage

Computer Fundamentals



Computer Fundamentals



Computer Fundamentals

- **Computer system**—group of associated components that work together
 - Hardware
 - Software

Computer Fundamentals

- **Hardware**

- Physical parts of the computer
- Includes such components as the system unit, monitor, keyboard, and printer

- **Motherboard**

- Circuit board that connects the central processing unit(s) to the other system components

Computer Fundamentals

- **System unit**

- Base unit of the computer—made up of the plastic or metal enclosure, the motherboard, and the integrated peripherals

Computer Fundamentals

- **Input**

- First operation of the information-processing cycle, enables the computer to accept data
- Data
 - Facts that are raw and unorganized
 - Entered into the computer for processing through the use of input devices such as a keyboard or mouse

Computer Fundamentals

- **Processing**

- Second operation of the information-processing cycle, converts data into information
- Information refers to consolidated, organized, processed data.
- The central processing unit (CPU) processes data into information.
- Random access memory (RAM) temporarily stores programs and data needed by the CPU.

Computer Fundamentals

- **Output**

- Third operation of the information-processing cycle, requires output devices, such as monitors and printers to display results for people to see or hear

Computer Fundamentals

- **Storage**

- Fourth operation of the information-processing cycle, holds programs, software, and data that the computer system uses
- **Storage devices**
 - Hard drives, CD and DVD drives, and media card readers—used with USB drives and flash memory cards

Computer Fundamentals

CD & DVD drives



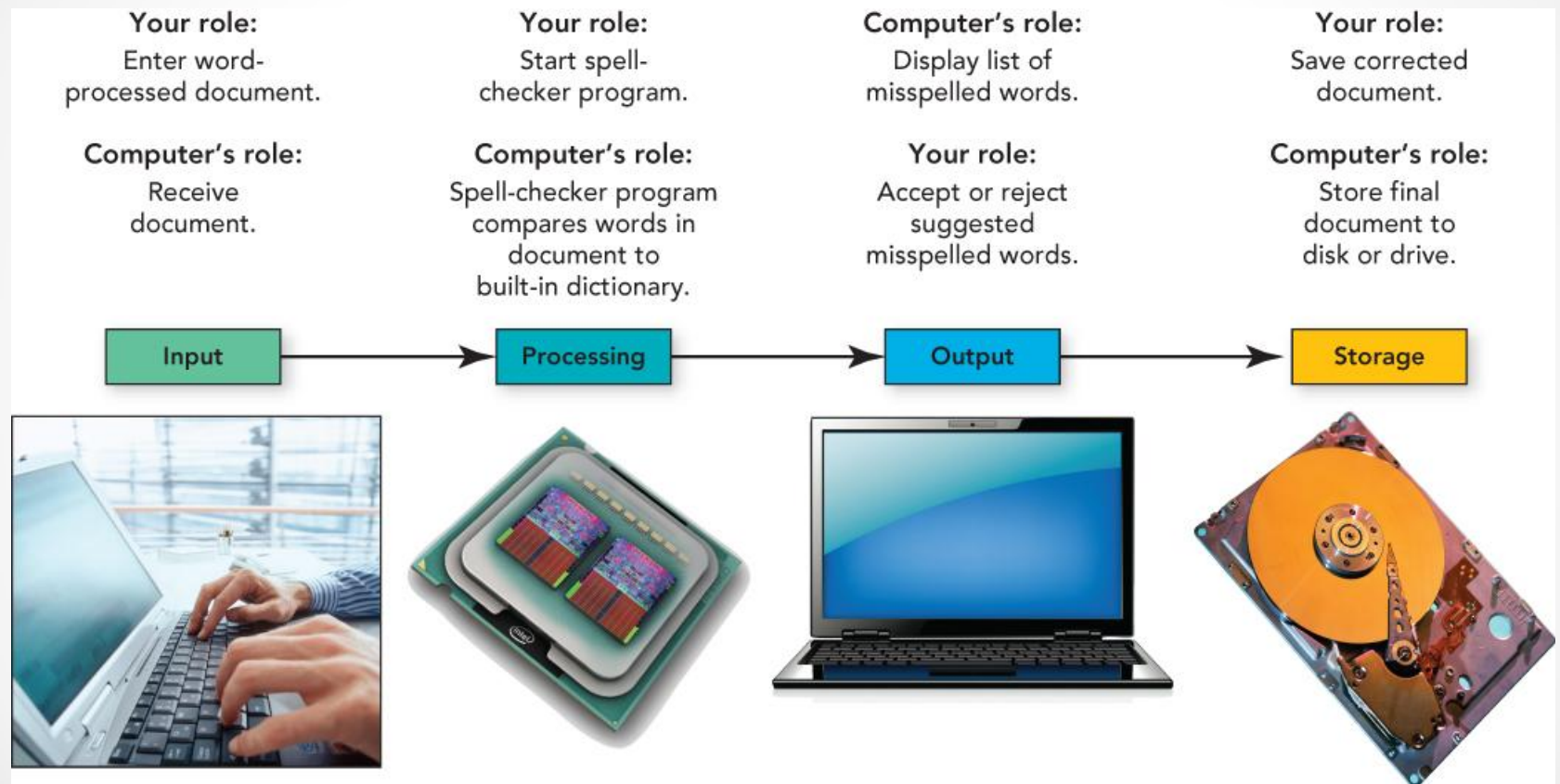
Media card reader



Flash drive



Computer Fundamentals



Computer Fundamentals

- **Communications**

- High-speed movement of data or information

- **Communication device**

- Hardware component that moves data in and out of a computer

- **Network**

- Connects two or more computers to share input/output devices and other resources through the use of a **network interface card**

Types of Computers

- **Computers can be separated into two main types:**
 - **Individual**—designed for one user at a time
 - **Organization**—designed to be used by many people at the same time

Types of Computers

- **Individual computers**

- **Personal computers (PCs)**—either Mac (Apple's Macintosh) systems or IBM-compatible systems
- **Desktop computers**—designed for home or office use, now include all-in-one computers that combine the system unit and the monitor
- **Portable computers** include notebooks, subnotebooks, and table PCs
 - Notebooks—small enough for easy computer mobility
 - Subnotebooks—run full desktop operating systems but have fewer components than notebooks, weigh less, are smaller
 - Tablet PCs—input data with a keyboard or mouse; can write on the monitor with a special pen or stylus

Types of Computers

- **Individual computers (con't.)**
 - **Wireless devices**—handheld computers, netbooks, personal digital assistants (PDAs), smartphones, e-books
 - Netbooks—small, inexpensive notebooks designed primarily for wireless Web browsing and e-mail
 - Smartphones—combine the capabilities of handheld computers, such as PDAs, and mobile phones
 - Professional workstations—intended for technical applications that need powerful processing and output

Types of Computers

Category	Size	Application	Cost	Image
Netbook Manufacturer: Acer, Asus, Dell, HP, and Lenovo	Between 5 and 15 inches in size and weighs 2 to 3 pounds	Primary use is Web browsing and e-mail. Because netbooks usually do not have large hard drives, they are great for cloud computing, an online service that provides applications and document storage remotely instead of on the user's hard drive.	\$150 to \$400	
iPad Manufacturer: Apple	Dimensions are 7.47 inches wide by 9.56 inches high and a depth of 0.5 inches, weight is 1.5 to 1.6 pounds	The iPad can download and read e-books; surf the Internet; play movies, TV shows, and other media; make calls; send instant messages/texts; take still photos or video; edit photos and videos; run off battery power for a full day; connect to a TV and play media; and sync its media with a computer.	\$500	
Handheld computers or personal digital assistants Manufacturers: Asus, Dell, HP, Palm, and Sony	Fits in the palm of your hand or the pocket of your jeans	Designed for portability, these devices usually use a stylus or virtual keyboard, one that appears on the touch screen, to manage contacts, use e-mail, and schedule appointments.	\$200 to \$400	
Smartphone Manufacturers: Apple iPhone, BlackBerry Curve, HP iPAQ, Motorola Droid, Palm Pre, and Treo Pro	Fits in the palm of your hand or the pocket of your jeans	Designed to use as a mobile phone with Web access. With the added features and downloadable applications, the line between the smartphone and handheld computers has become blurred.	\$100 to \$300	
Dedicated Devices Example: Kindle DX Reader by Amazon, the Nook by Barnes and Noble, and the Sony Reader	Dimensions are approximately 7.2 inches wide by 10.4 inches high, depth of 0.4 inches, and weight of 1.1 pounds	Dedicated to a specific activity. The Kindle DX Reader is an e-book reader (electronic book reader) designed to download, display, and read books obtained through an e-bookstore (an electronic book store accessed via the Internet where books are purchased online and downloaded to a Kindle reader, smartphone, iPad, netbook or other connected device for the purchaser to read).	\$299 to \$400	

Types of Computers

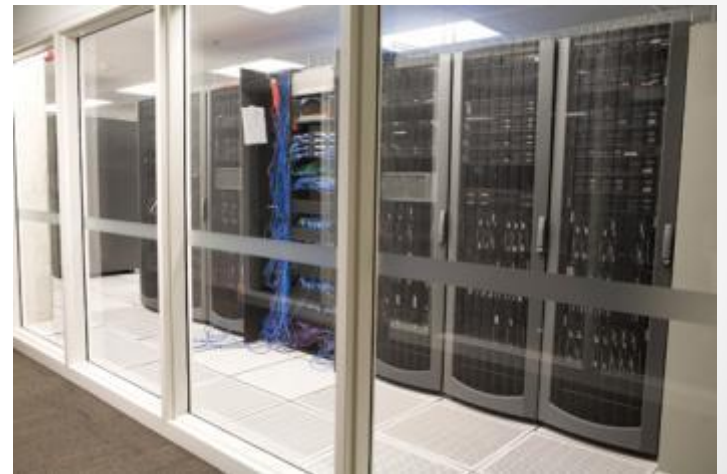
- **Organization computers**

- **Servers**—enable users connected to a computer network to have access to the network's programs, hardware, and data
- **Clients**—include the user computers connected to the network
- **Client/server network**—includes the use of client computers with centralized servers

Types of Computers

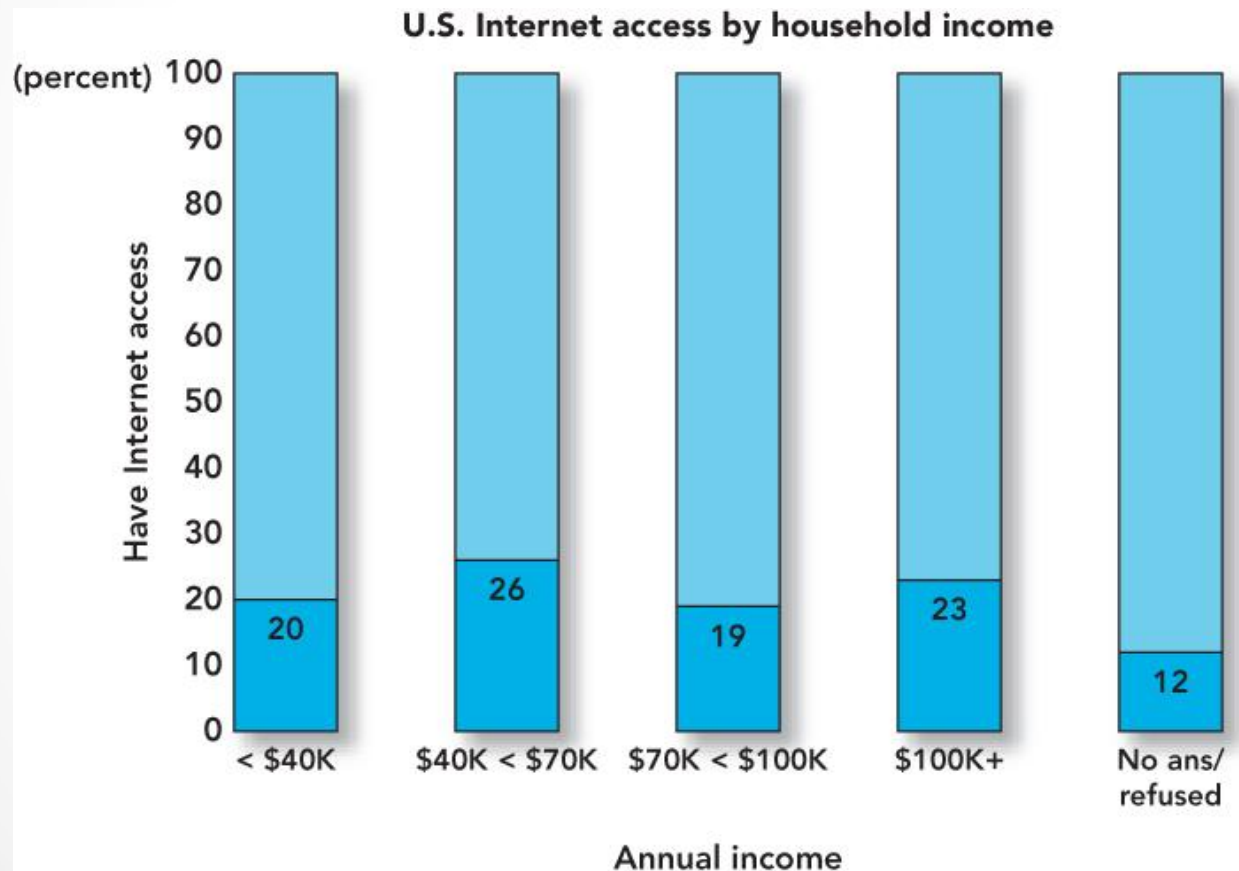
- **Organization computers (con'd.)**
 - **Minicomputers (midrange servers)**—designed to meet the needs of smaller companies or businesses
 - **Mainframes**—very large processing jobs to meet the needs of large companies or agencies of the government
 - **Supercomputers**—able to perform extremely high-speed processing and show underlying patterns

Types of Computers



Computers, Society, and You

- The Digital Divide



Computers, Society, and You

- **Web-based applications**
 - **Internet messaging (IM)**—free, real-time connection
 - Two or more parties can use a buddy list to identify and restrict the contacts the person wishes to communicate with
 - **Social networks**—include Facebook, MySpace, LinkedIn, and Twitter

Computers, Society, and You

- **Collaborative work**

- **Computer forensics**—branch of forensic science that deals with legal evidence found on computers, and is used to find and apprehend criminals
- Collaborative software includes:
 - Google Docs—free Web-based word processor and spreadsheet
 - Wiki—collection of Web pages designed to let anyone with access contribute or modify content
 - Google Groups—free service that helps users connect, share information, and communicate effectively over the Web

Computers, Society, and You

- **Advantages and Disadvantages of Computer Use**

Advantages	Disadvantages
Speed Memory Storage Hardware reliability and accuracy	Information overload Cost Data inaccuracy Software unreliability

Computers, Society, and You

- **When using computer hardware:**
 - Do not plug too many devices into electrical outlets.
 - Use surge protectors.
 - Place hardware where it can't fall or be damaged.
 - Provide adequate space for air circulation around hardware.
 - Securely fasten computer cables, cords, and wires.

Computers, Society, and You

- **Ergonomics**—field of study concerned with the fit between people and their work environment
- **Carpal tunnel syndrome** (repetitive strain injury or cumulative trauma disorder)—caused by repeated motions that damage nerves in hands, wrists, and arms

Computers, Society, and You

- **Promote safety and comfort**
 - Position top of your monitor at eye level
 - Tilt the monitor back 10 to 20 degrees
 - Place it at least 20" from your eyes
 - Keep your wrists flat—use a wrist rest if needed
 - Rest your eyes often by focusing on an object 20 or more feet away
 - Stand and stretch periodically

Computers, Society, and You

- **Software programs**
 - Contain flaws
 - Errors cause programs to run slowly or miscalculate.
 - Bugs are almost impossible to eliminate completely.

Computers, Society, and You

- **Computer ethics**

- Moral dilemmas relating to computer usage

- **Digital piracy**

- Unauthorized reproduction and distribution of computer-based media

- **Unethical behavior**

- Sending viruses, stealing credit card information, computer stalking, and installing illegitimate copies of software on computers

Computers, Society, and You

- **Computers provide those who are disabled and disadvantaged with added support and opportunities**
- **E-learning**
 - Learning without requiring students to be at a specific location at a specific time

Computers, Society, and You

- **Automation**

- Replacement of people by machines and computers

- **Outsourcing**

- Subcontracting of portions of a job to a third party to reduce cost, time, and energy.

- **Computer technology**

- Aided globalization and the resulting outsourcing of jobs, as well as structural unemployment—the obsolescence of certain jobs.

Computers, Society, and You

- **Be a responsible computer user:**
 - Understand how your computer use affects others.
 - Obey laws and conform to requests regarding use of cell phones.
 - Be aware of **e-waste** and the proper disposal of outdated computer hardware.

Computers, Society, and You

- **Advances in computer technology**
 - Upgrade software to obtain the latest software features.
 - Stay informed to help avoid computer viruses.

Summary

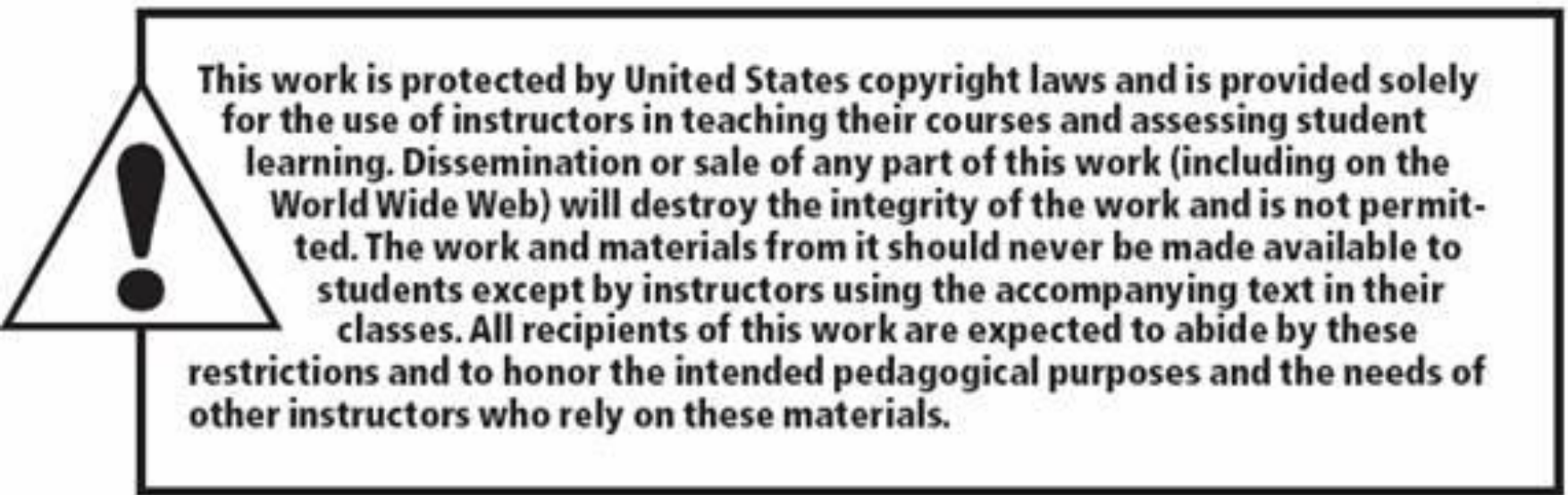
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