Microsoft Office 2010

Introduction to Computers

and How to Purchase
Computers and
Mobile Devices

Objectives

- Define the term computer and discuss the four basic computer operations: input, process, output, and storage

- Define data and information

- Identify the differences among desktop computers, notebook computers, and mobile devices

- Explain the primary components of the computer and their use

- Describe the use of hard disks, flash memory, optical discs, and other storage media

Objectives

- Discuss computer software and explain the difference between system software and application software

- Identify several types of application software

- Discuss the Internet and World Wide Web

- Describe various types of Internet and network attacks and how to protect against them

- Explain how to purchase computers and mobile devices

What Is a Computer?

- An electronic device, operating under the control of instructions stored in its own memory, that can:

  - Accept data (input)

  - Process the data according to specified rules (process)

  - Produce results (output)

  - Store the results (storage) for future use

What Is a Computer?

What is a Computer?

- Four basic operations compromise the information processing cycle
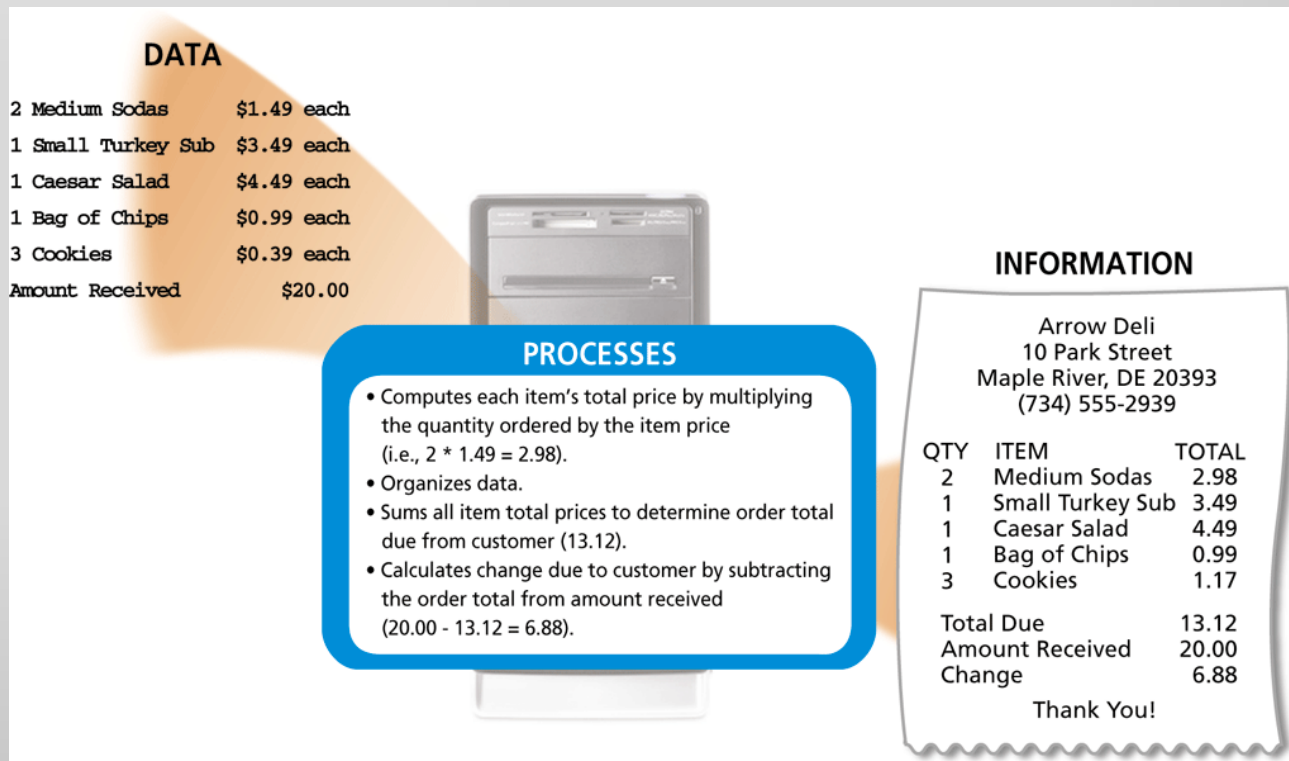
The Components of a Computer

- The six primary components of a computer are input devices, the processor (control unit and arithmetic/logic unit), memory, output devices, storage devices, and communications devices

- The processor, memory, and storage devices are housed in a box-like case called the system unit

- A peripheral is a device that connects to the system unit and is controlled by the processor in the computer

The Components of a Computer
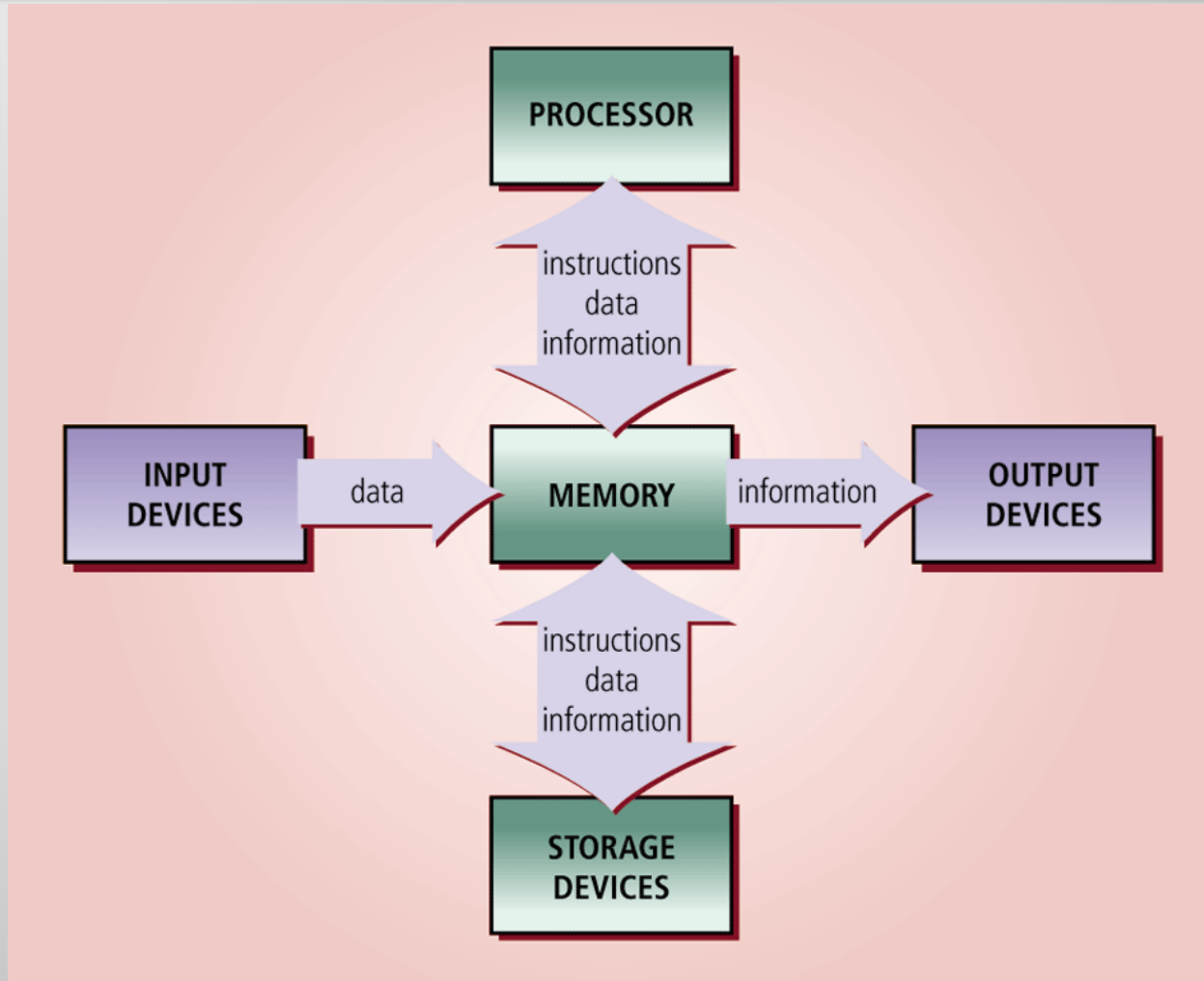
Personal Computers and Mobile Devices

- A personal computer is a computer that can perform all of its input, processing, output, and storage activities by itself

- A mobile device is a computing device small enough to hold in your hand

Personal Computers and Mobile Devices

- Desktop computer

- Notebook computer
  - Laptop computer
  - Netbook
  - Tablet PC

- Mobile devices
  - Smart phone
 - Portable media player
  - Digital camera

display

keyboard

hinge

optical disc drive

Input Devices

- An input device is any hardware component that allows you to enter data and instructions into a computer

  - A keyboard is an input device that contains keys users press to enter data and instructions into the computer

  - A stylus is a small metal or plastic device that looks like a tiny ink pen, but uses pressure instead of ink

  - A mouse is a pointing device that fits comfortably under the palm of your hand

  - Most notebook computers have a touchpad, a small, flat, rectangular pointing device

Input Devices
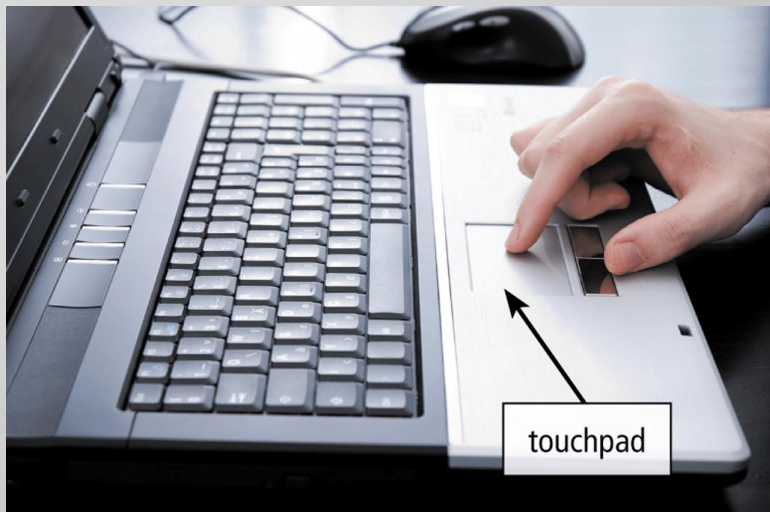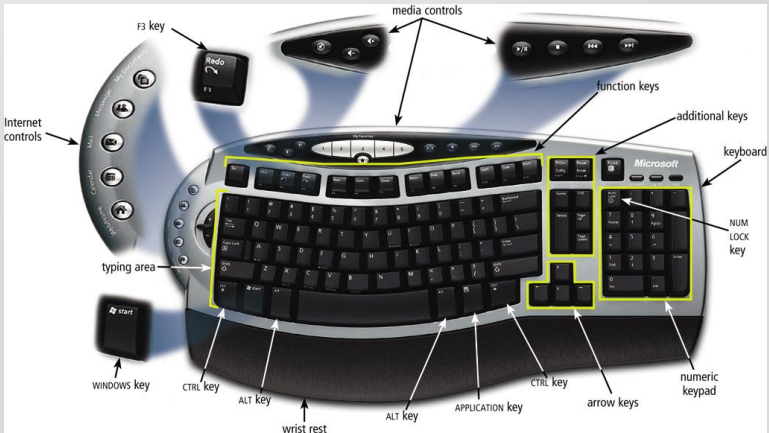
Input Devices

- Other input for mobile devices

System Unit

- The system unit is a case that contains electronic components of the computer used to process data
  - The processor (CPU) interprets and carries out the basic instructions that operate a computer
    - Arithmetic/logic unit
  - Memory (RAM) consists of electronic components that store instructions waiting to be executed and data needed by those instructions

System Unit

drive bay

power supply

sound card

system unit

video card

memory module

processor
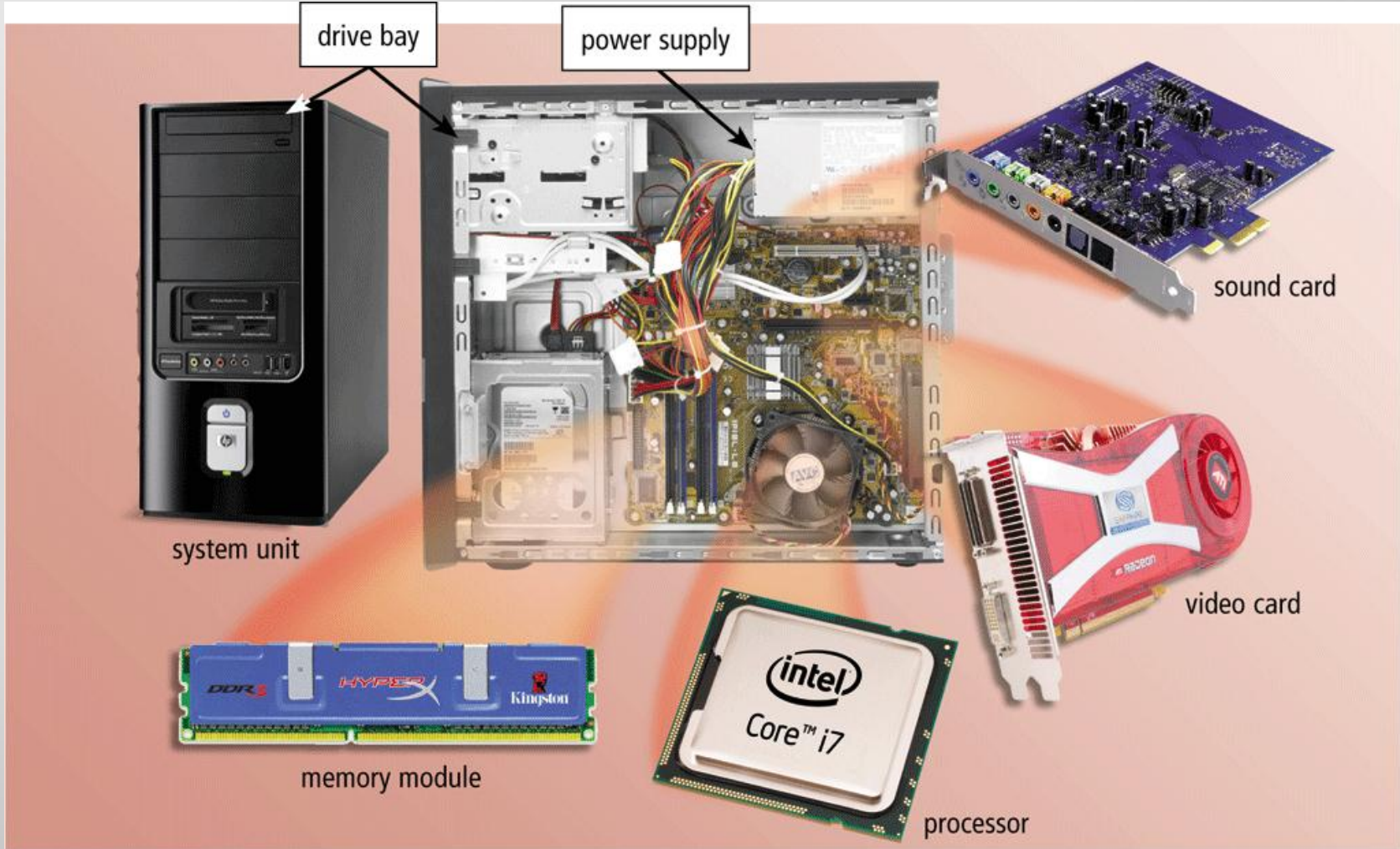
Output Devices

- Output devices are hardware components that convey information to one or more people

- A printer is an output device that produces text and graphics on a physical medium such as paper
  - Ink-jet printer
  - Photo printer
  - Laser printer
  - Multifunction peripheral (all-in-one device)

Output Devices

Display Devices

- A display device is an output device that visually conveys text, graphics, and video information

  - LCD monitors use a liquid crystal display to produce images on the screen

speakers

Display Devices

notebook computer

PDA

smart phone
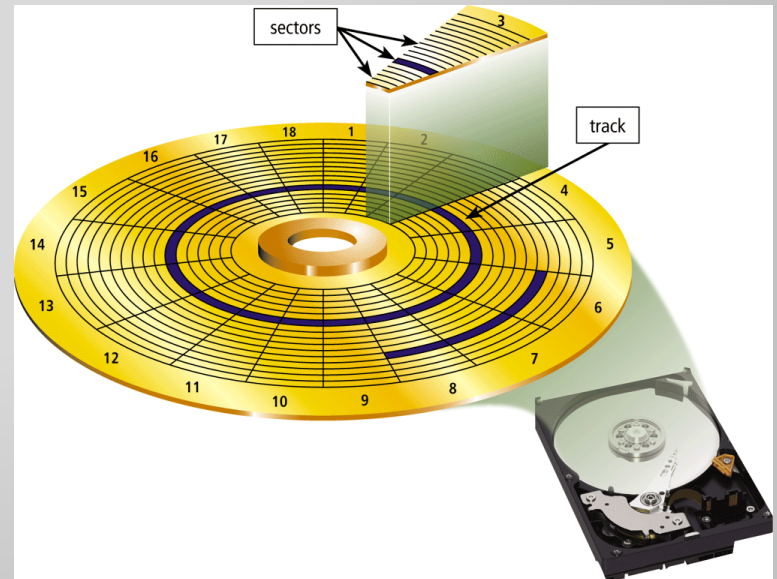
handheld game console

portable media player

digital camera

Storage Devices

- A storage device is the computer hardware that records and/or retrieves items to and from storage media

- A hard disk is a storage device that contains one or more inflexible, circular platters that use magnetic particles to store data, instructions, and information
  - Sectors
  - Tracks

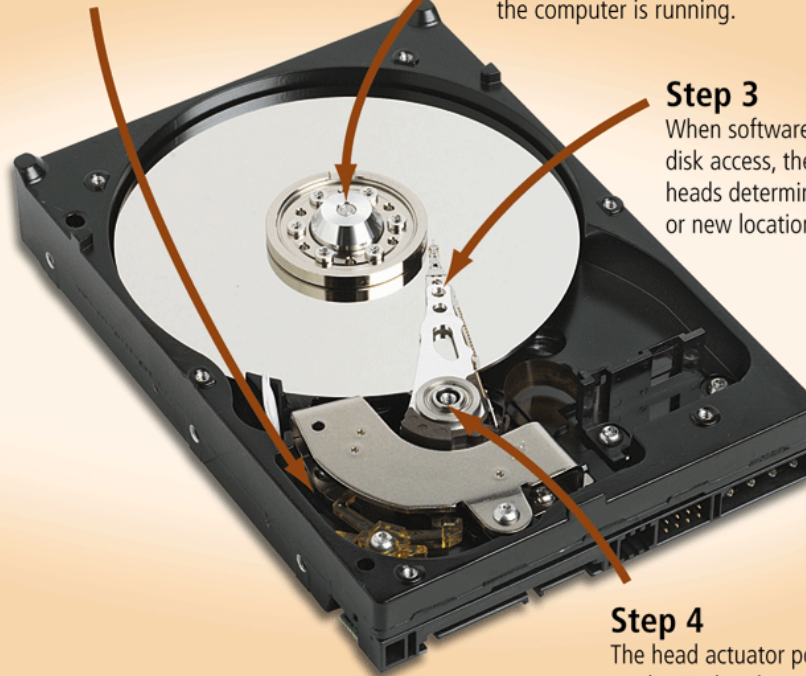# Storage Devices

How a Hard Disk Works

Step 1
The circuit board controls the movement of the head actuator and a small motor.

Step 2
A small motor spins the platters while the computer is running.

Step 3
When software requests a disk access, the read/write heads determine the current or new location of the data.

Step 4
The head actuator positions the read/write head arms over the correct location on the platters to read or write data.

Storage Devices

- An external hard disk is a separate freestanding hard disk that connects with a cable to a port on the system unit or communicates wirelessly

- A removable hard disk is a hard disk that you insert and remove from a drive

external hard disk

one type of removable hard disk

removable hard disk drive

Storage Devices

- Flash memory is a type of memory that can be erased electronically and rewritten
  - Solid state media
  - A solid state drive (SSD) is a storage device that typically uses flash memory to store data, instructions, and information
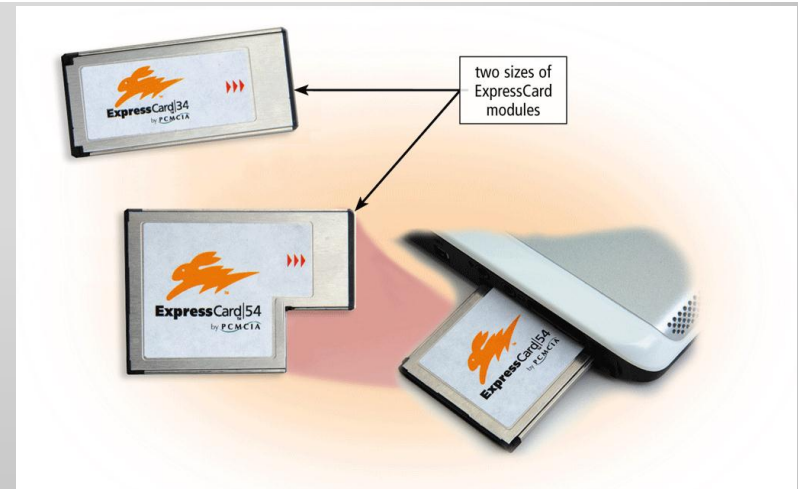
Storage Devices

- A memory card is a removable flash memory device, usually no bigger than 1.5 inches in height or width, that you insert and remove from a slot in a computer, mobile device, or card reader/writer

Storage Devices

- A USB flash drive, sometimes called a thumb drive, is a flash memory storage device that plugs into a USB port on a computer or mobile device

- An ExpressCard module is a removable device mobile device that fits in an ExpressCard slot

two sizes of ExpressCard modules

Storage Devices

- An optical disc is a flat, round, portable metal disc with a plastic coating

Optical Disc Formats			
Optical Disc	**Read**	**Write**	**Erase**
CD-ROM	Y	N	N
CD-R	Y	Y	N
CD-RW	Y	Y	Y
DVD-ROM BD-ROM	Y	N	N
DVD-R DVD+R BD-R	Y	Y	N
DVD-RW DVD+RW DVD-RAM BD-RE	Y	Y	Y

Storage Devices

- Cloud storage is an Internet service that provides hard disk storage to computer users
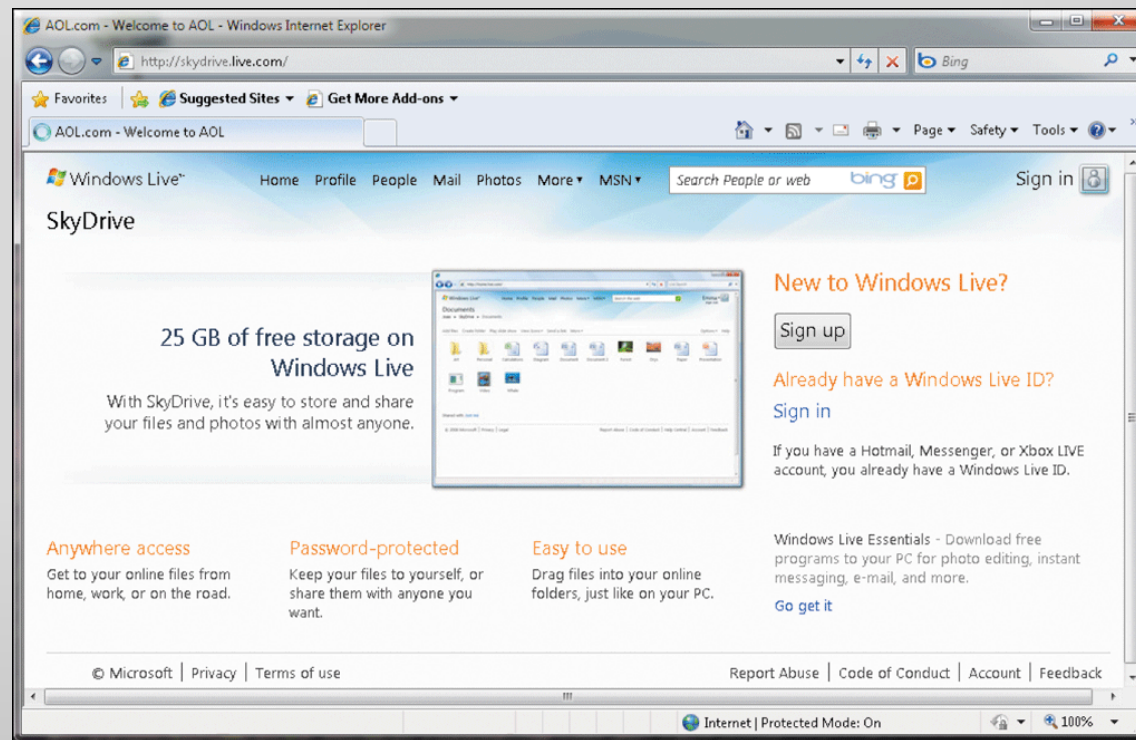
Communications Devices

- A communications device is a hardware component that enables a computer to send (transmit) and receive data, instructions, and information to and from one or more computers or mobile devices

  - Transmission media

Computer Software

- Software, also called a program, consists of a series of related instructions, organized for a common purpose, that tells the computer what tasks to perform and how to perform them
  - Graphical user interface
  - Web application
- System software consists of programs to control the operations of computer and its devices
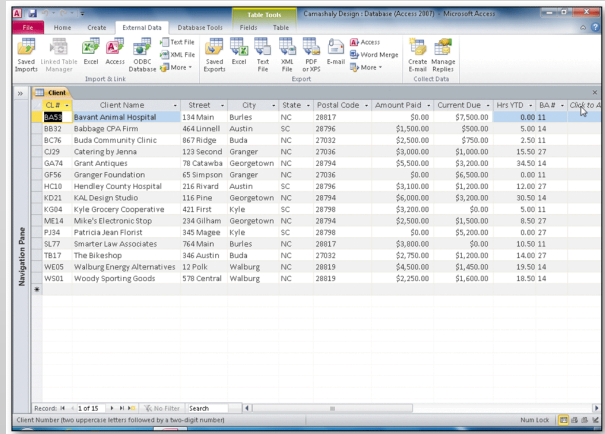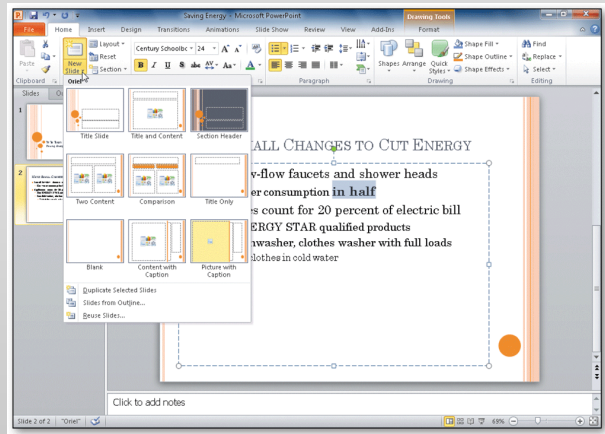 - Operating system
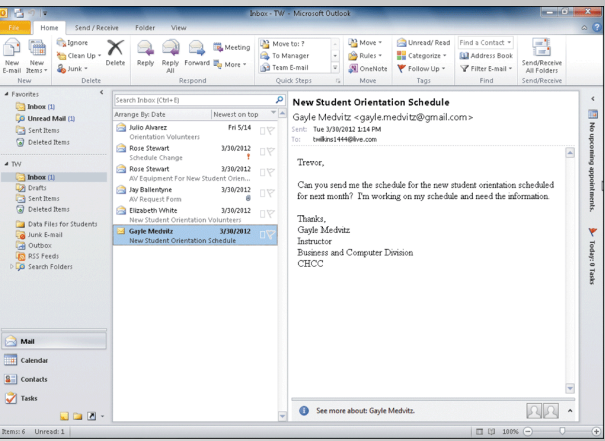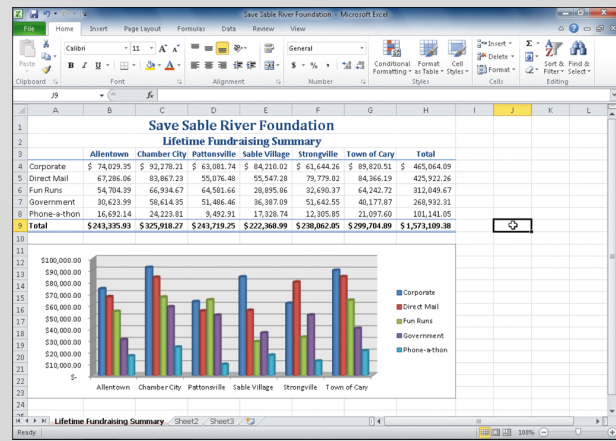 - Utility program

Computer Software
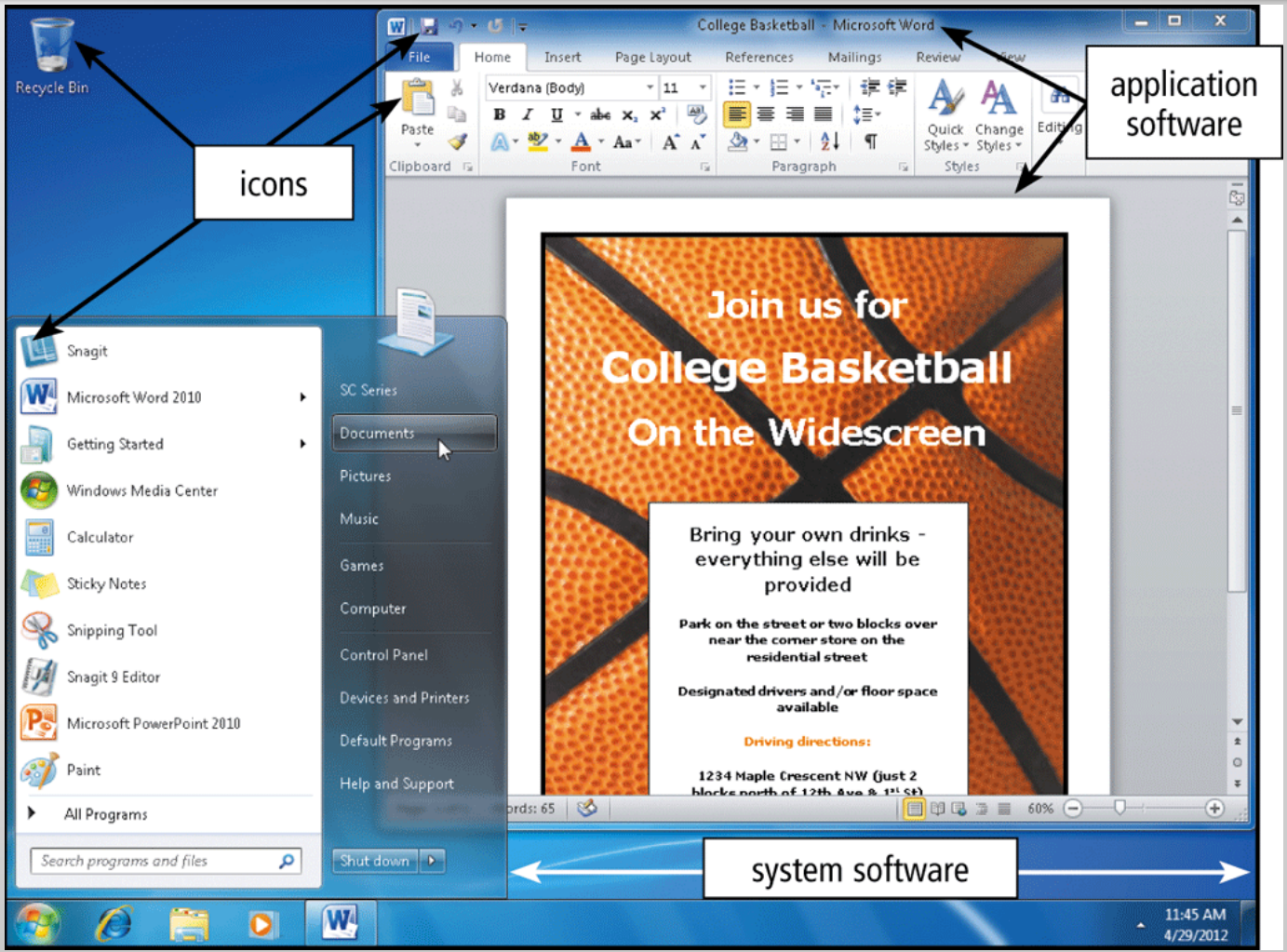
Computer Software

- Application software consists of programs designed to make users more productive and/or assist them with personal tasks
  - Word processing
  - Presentation
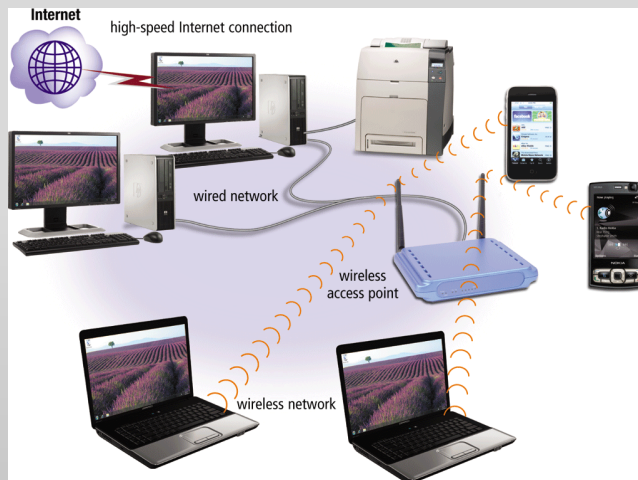 - Spreadsheet
  - Database
  - E-mail

Computer Software

Networks and the Internet

- A network is a collection of computers and devices connected together, often wirelessly, via communications devices and transmission media

  - Local area network
  - Wide area network

Networks and the Internet

- The Internet is a worldwide collection of networks that links millions of businesses, government agencies, educational institutions, and individuals

  – Internet service provider (ISP)

  – Online service provider (OSP)

  – Wireless Internet service provider (WISP)

Networks and the Internet

- The World Wide Web contains billions of documents called Web pages
  - Web page
  - Web site
  - Web browser
  - Web address
  - Hypertext transfer protocol
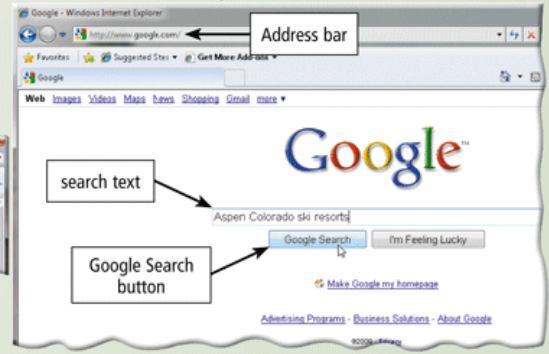
Networks and the Internet

- When you conduct business activities online, you are participating in electronic commerce, also known as e-commerce
  - Business to consumer (B2C)
  - Consumer to consumer (C2C)
  - Business to business (B2B)

Searching the Web

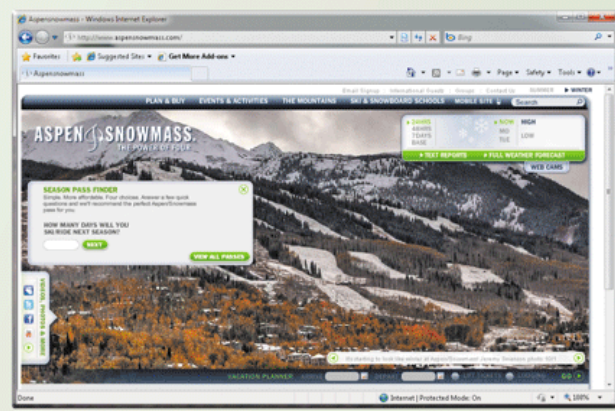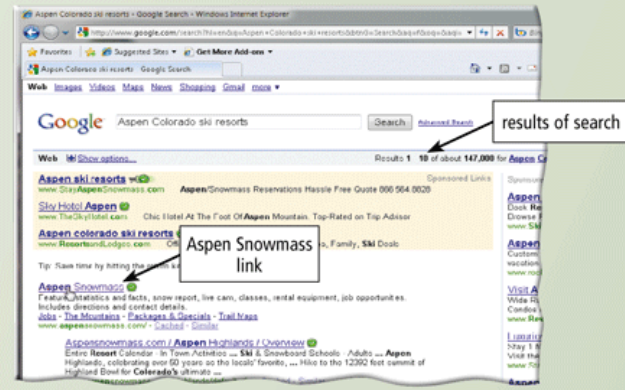# Computer Viruses and Other Malware

- Computer virus

- Worm

- Trojan horse

- Rootkit

- An antivirus program protects a computer against viruses by identifying and removing any computer viruses found in memory, on storage media, or on incoming files

Computer Viruses and Other Malware

Tips for Preventing Viruses and Other Malware

1. Never start a computer with removable media inserted in the drives or plugged in the ports, unless the media are uninfected.

2. Never open an e-mail attachment unless you are expecting it *and* it is from a trusted source.

3. Set the macro security in programs so that you can enable or disable macros. Enable macros only if the document is from a trusted source and you are expecting it.

4. Install an antivirus program on all of your computers. Update the software and the virus signature files regularly.

5. Scan all downloaded programs for viruses and other malware.

6. If the antivirus program flags an e-mail attachment as infected, delete or quarantine the attachment immediately.

7. Before using any removable media, scan the media for malware. Follow this procedure even for shrink-wrapped software from major developers. Some commercial software has been infected and distributed to unsuspecting users.

8. Install a personal firewall program.

9. Stay informed about new virus alerts and virus hoaxes.

How to Purchase a Desktop Computer

- Determine the specific software to use on your computer

- Know the system requirements of the operating system

- Look for bundled software

- Avoid buying the least powerful computer available

- Consider upgrades to the mouse, keyboard, monitor, printer, microphone, and speakers

How to Purchase a Desktop Computer

- Determine whether to use a broadband or dial-up connection to access the Internet

- Use a worksheet to compare computers, services, and other considerations

- If you are buying a new computer, you have several purchasing options: buying from a school bookstore, a local computer dealer, a local large retail store, or ordering by mail via telephone or the Web

- If you are buying a used computer, stay with name brands such as Dell, Apple, HP, and Gateway

- If you have a computer and are upgrading to a new one, then consider selling or trading in the old one

How to Purchase a Desktop Computer

- Be aware of hidden costs

- Consider more than just price

- Avoid restocking fees

- Use a credit card to purchase a new computer

- Consider purchasing an extended warranty or service plan

How to Purchase a Notebook Computer

- Determine which computer fits your mobile computing needs
- Purchase a notebook computer with a sufficiently large screen
- Experiment with different keyboards, pointing devices, and digital pens
- Make sure the notebook computer you purchase has an optical disc drive
- If necessary, upgrade the processor, memory, and disk storage at the time of purchase
- The availability of built-in ports and slots and a USB hub on a notebook computer is important

How to Purchase a Notebook Computer

- If you plan to use your notebook computer for note-taking at school or in meetings, consider a convertible Tablet PC

- If you purchase a Tablet PC, determine whether you require multi-touch technology

- Purchase a notebook computer with an integrated Web cam

- Check with your wireless carrier to see if it offers netbooks for sale

- Purchase a notebook computer with a built-in wireless network connection

How to Purchase a Notebook Computer

- If you plan to use your notebook computer for long periods without access to an electrical outlet, purchase a second battery

- Purchase a well-padded and well-designed carrying case

- If you plan to connect your notebook computer to a video projector, make sure the notebook computer is compatible with the video projector

- For improved security and convenience, consider a fingerprint scanner

- Review the docking capabilities of the Tablet PC

How to Purchase a Smart Phone

- Choose a wireless carrier and plan that satisfies your needs and budget

- Decide on the size, style, and weight of the smart phone that will work best for you

- Determine whether you prefer a touch screen, keypad, or mini-keyboard

- If you will be synchronizing your smart phone with a program on your computer, select a smart phone that is compatible with the program you wish to use

How to Purchase a Smart Phone

- Compare battery life

- Make sure your smart phone has enough memory and storage

- Check out the accessories

How to Purchase a Portable Media Player

- Choose a device with sufficient storage capacity

- Determine which file formats your new portable media player should support and how you will add files to your library

- Consider a portable media player that can play video

- Read reviews about the sound quality on the portable media players you are considering

How to Purchase a Portable Media Player

- Select a size and style that works best for you

- Check out additional memory cards

- Consider rechargeable batteries

- Stay within your budget

How to Purchase a Digital Camera

- Determine the type of digital camera that meets your needs

- The digital camera with the highest resolution is not always the best

- Consider size and weight

- Different cameras require different memory cards

- Photo editing features can save you time

How to Purchase a Digital Camera

- Make sure that you can see the LCD screen easily

- Determine whether your pictures will require you to zoom

- Price is important

- Know your batteries

- Purchase accessories

Summary

- Define the term computer and discuss the four basic computer operations: input, process, output, and storage

- Define data and information

- Identify the differences among desktop computers, notebook computers, and mobile devices

- Explain the primary components of the computer and their use

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Summary

- Discuss computer software and explain the difference between system software and application software

- Identify several types of application software

- Discuss the Internet and World Wide Web

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Introduction to Computers

Complete