Introduction to Computers and Applications

A World of Computers

What is computer literacy?
- Knowledge and understanding of computers and their uses
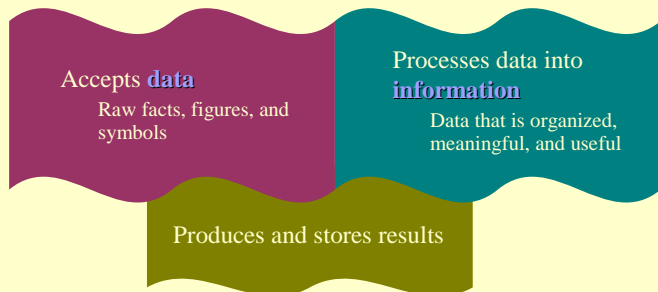- Computers are everywhere

What Is a Computer?

How is a computer defined?
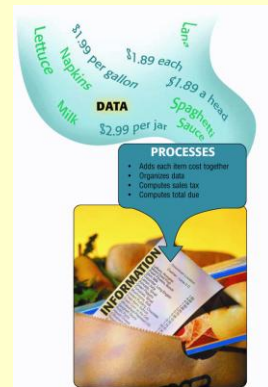- Electronic device operating under the control of instructions stored in its own memory

Accepts **data**
> Raw facts, figures, and symbols

Processes data into **information**
> Data that is organized, meaningful, and useful

Produces and stores results

What Is a Computer?

What is the information processing cycle?
- Input
- Process
- Output
- Storage
- Communication

What Is Input?

What is input?
- Data or instructions entered into memory of computer
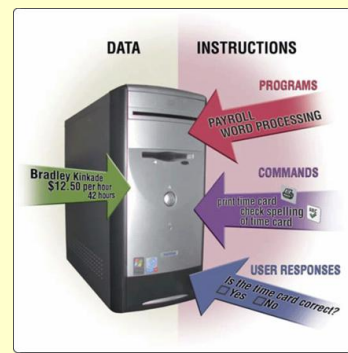
What Is Input?

What are the two types of input?
- Data
  - Unprocessed text, numbers, images, audio, and video
- Instructions
  - Programs
  - Commands
  - User responses

What Is Input?

What is an input device?

➤ **Hardware** used to enter **data** and instructions

Next ▶

What is Output?

What is an output device?

➤ **Hardware that conveys information to a user**

Next ▶

The System Unit

What is the system unit?

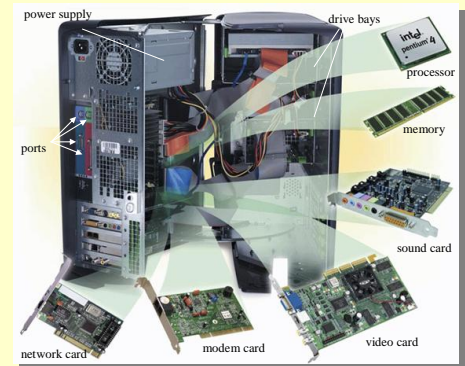➤ **Box-like case containing electronic components used to process data**

Next ▶

The System Unit

What are common components inside the system unit?

➤ **Processor**
➤ **Memory**
➤ **Adapter cards**
  - **Sound card**
  - **Modem card**
  - **Video card**
  - **Network card**
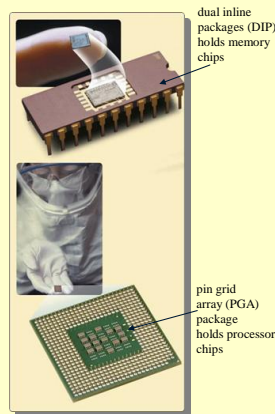➤ **Ports**
➤ **Drive bays**
➤ **Power supply**

Next ▶

The System Unit

What is a chip?

➤ **Small piece of semi-conducting material on which integrated circuits are etched**
  - Integrated circuits contain many microscopic pathways capable of carrying electrical current
➤ **Chips are packaged so they can be attached to a circuit board**

dual inline packages (DIP) holds memory chips

pin grid array (PGA) package holds processor chips

Next ▶

Processor

What is the central processing unit (CPU)?

➤ **Interprets and carries out basic instructions that operate a computer**
  - **Control unit** directs and coordinates operations in computer
  - **Arithmetic logic unit (ALU)** performs arithmetic, comparison, and logical operations
➤ **Also called the processor**

Next ▶

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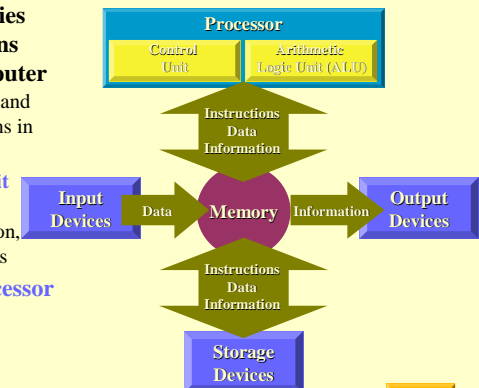
Memory

What is random access memory (RAM)?

Memory chips that can be read from and written to by processor

Also called main memory or primary storage

**Most RAM is** volatile, **it is lost when computer's power is turned off**

The more RAM a computer has, the faster it responds

The System Unit

What is the motherboard?

> **Main circuit board in system unit**
> **Contains adapter cards, processor chips, and memory chips**
> **Also called** system board

adapter cards
processor chip
memory chips
memory slots
Expansion slots for adapter cards
motherboard
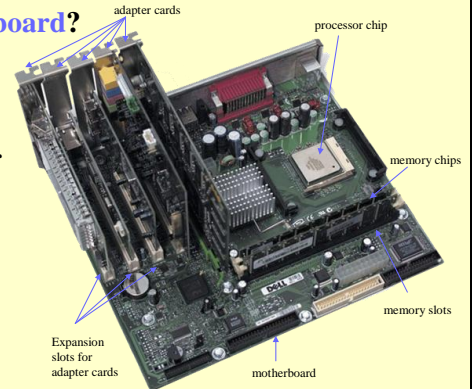
The Motherboard

What are two main components on the motherboard?

Central Processing Unit (CPU)
Also called a **processor**
Carries out instructions that tell computer what to do

Memory
Temporary holding place for data and instructions

Storage

What is storage?

> **Holds data, instructions, and information for future use**

Storage media
Physical material on which data, instructions, and information are stored

Storage device
Records and retrieves items to and from a storage medium

Storage

What is storage media?

Portable, thin memory cards used in:

Digital cameras

Handheld computers

Storage Devices

What is a floppy disk?

> **Thin, circular, flexible disk enclosed in rigid plastic shell**
> **A Zip disk is a higher capacity disk that can store the equivalent of up to 170 floppy disks**
> **A USB flash drive is portable, and has much greater storage capacity**

Storage Devices

What is a flash drive?
- ➢ **Provides much greater storage capacity than a floppy disk or Zip® disk**
- ➢ **Small and lightweight enough to be transported on a keychain or in a pocket**

Storage Devices

What is a hard disk?
- ➢ **Provides much greater storage capacity than a floppy disk or USB flash drive**
- ➢ **Housed inside the system unit**

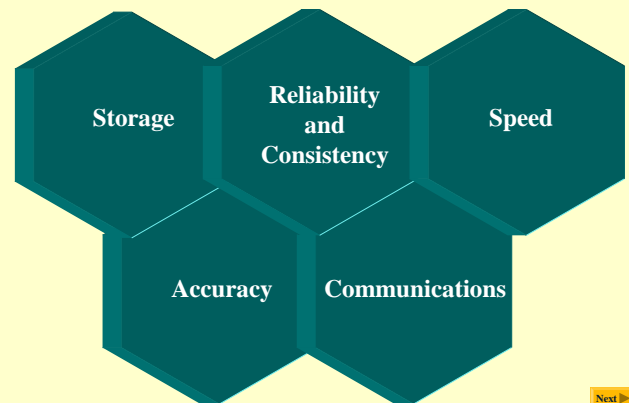## Storage Devices

What is a compact disc?
- ➢ **Flat, round, portable metal disc**
  - ▪ CD-ROM
  - ▪ CD-RW
  - ▪ DVD-ROM
  - ▪ DVD+RW

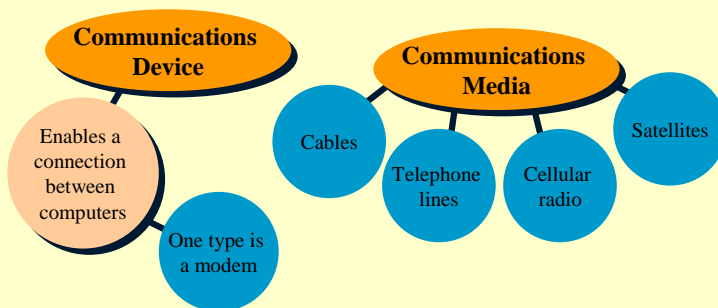## Why Is a Computer So Powerful?

What makes a computer powerful?

Storage

Reliability and Consistency

Speed

Accuracy

Communications

Networks and the Internet

What is a network?
- ➢ **Collection of computers and devices connected together**

Communications Device

Enables a connection between computers

One type is a modem

Communications Media

Cables

Telephone lines

Cellular radio

Satellites

Networks and the Internet

What are the reasons to network?

To share

Resources

Hardware devices

Software programs

Data

Information

To save time and money
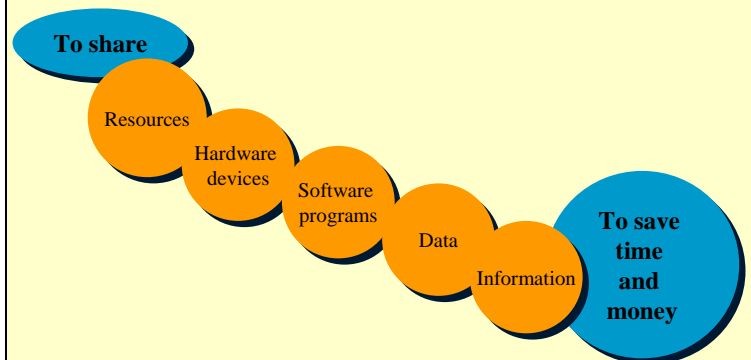
Networks and the Internet

What is a server?

➢ **Manages the resources on a network**

➢ **A client accesses the resources on the server**

Next ▶

Servers

What types of servers are there?

Midrange server Powerful, large computer that supports up to a few thousand computers

Mainframe Very powerful, expensive computer that supports thousands of computers

Supercomputer The fastest, most powerful, most expensive computer. Used for applications requiring complex mathematical calculations
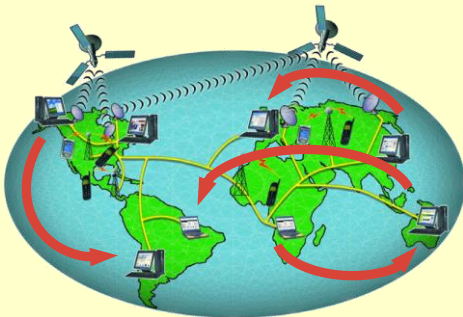
Next ▶

Networks and the Internet

What is the Internet?

➢ **Worldwide collection of networks that connects millions of computers**

Next ▶

Networks and the Internet

Why do users access the Internet?

1. **Communications**
2. **Information**
3. **Shopping**
4. **Banking and Investing**
5. **Classes**
6. **Entertainment**

Next ▶

Networks and the Internet

What is the Web?

➢ **Billions of documents, called Web pages, available to anyone connected to the Internet**

A **Web site** is a collection of related Web pages

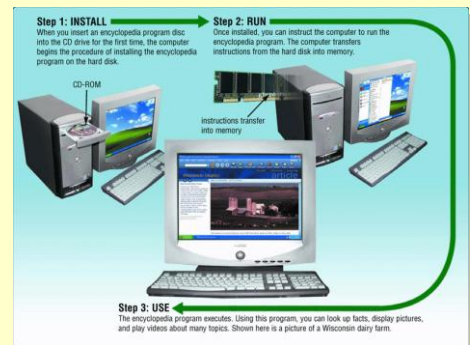A **Web page** contains text, graphics, sound, video, and links to other Web pages

You can share information by creating Web pages or posting photos on a photo community

Next ▶

Computer Software

How do you install a software program?

➢ **A program is a series of instructions that tells the computer what to do**

Step 1: INSTALL
When you insert an encyclopedia program disc into the CD drive for the first time, the computer begins the procedure of installing the encyclopedia program on the hard disk.

Step 2: RUN
Once installed, you can instruct the computer to run the encyclopedia program. The computer transfers instructions from the hard disk into memory.

instructions transfer into memory

CD-ROM

Step 3: USE
The encyclopedia program executes. Using this program, you can look up facts, display pictures, and play videos about many topics. Shown here is a picture of a Wisconsin dairy farm.

Next ▶

Computer Software

What is a graphical user interface (GUI)?
- Allows you to interact with the software using graphics and icons
- Controls how you enter data and how the screen displays information

Next ▶

Computer Software

What is system software?
- Programs that control the operations of the computer and its devices

**Operating System (OS)** is a set of programs that coordinates all activities among computer hardware devices and allows users to run application software

Utility Programs allow the user to perform maintenance-type tasks usually related to managing a computer, its devices or its programs

Next ▶

Computer Software

What is application software?
- Programs that perform specific tasks for users

Word Processing	Spreadsheet
Database	Presentation Graphics
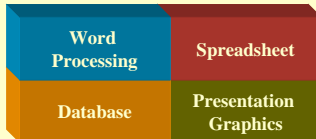
Next ▶

Business Software

What is word processing software?
- Allows users to create and manipulate text and graphics
  - **Clip art** is a collection of graphics that you can insert in documents

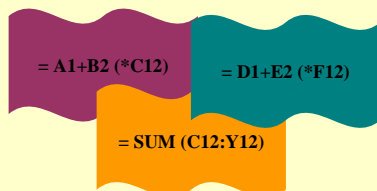Next ▶

Business Software

What is spreadsheet software?
- Organizes data
- Performs calculations and recalculates when data changes

= A1+B2 (*C12)

= D1+E2 (*F12)

= SUM (C12:Y12)

Next ▶

Business Software

What is database software?

Allows you to create and manage data

Add, change, delete, sort, and retrieve data

Next ▶

Business Software

What is presentation graphics software?
- Used to create visual aids for presentations
- A presentation is sometimes called a slide show

Business Software

What is a software suite?

A collection of individual applications sold as a single package

Two major advantages:

lower cost

ease of use

Computer Software

What is a programmer?
- Someone who develops application or system software
  - Programmer writes instructions to direct computer to process data into information

Javascript program

Resulting Internet application

Categories of Computers

What are the categories of computers?

Personal computers (desktop)

Mobile computers and mobile devices

Midrange servers

Mainframe computers

Supercomputers

Personal Computers

What are the two most popular series of personal computers?

- PC and compatibles use the Windows operating system
- Apple Macintosh uses the Macintosh operating system (Mac OS)

Personal Computers

What is a desktop computer?
- Designed so all of the components fit on or under a desk or table

Personal Computers

What is a notebook computer?
- **Portable, small enough to fit on your lap**
- **Also called a laptop computer**
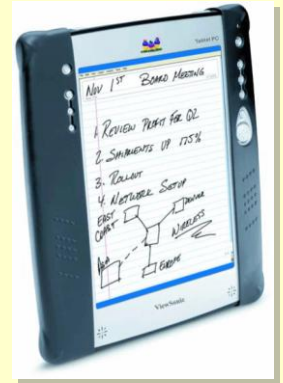- **Generally more expensive than a desktop computer**

CD and DVD drives

Next ▶

Handheld Computers

What is a tablet PC?
- **Resembles a letter-sized slate**
- **Allows you to write on the screen using a digital pen**
- **Especially useful for taking notes**

Next ▶

Handheld Computers

What are Web-enabled handheld computers?
- **Allow you to check e-mail and access the Internet**
- **Web-enabled telephone is a "smart phone"**

Next ▶

Handheld Computers

What is a handheld computer?

Small enough to fit in your hand

Used by mobile employees such as meter readers and delivery people

Next ▶

Handheld Computers

What is a personal digital assistant (PDA)?
- **Provides personal organizer functions**
  - Calendar
  - Appointment book
  - Address book
  - Calculator
  - Notepad

Next ▶

Elements of an Information System

What are information system elements?
- **People**
- **Procedures**
- **Data**
- **Software**
- **Hardware**

Next ▶

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Examples of Computer Usage

What are five categories of computer users?

Examples of Computer Usage

What software is available for a home user?

Examples of Computer Usage

What software is available for a small office/home office (SOHO) user?

- Local area network (LAN)
- Productivity software
- Specialty software
- Web usage
- E-mail

Examples of Computer Usage

What is available for a mobile user?

- Hardware
- Software
  - Productivity
  - Presentation
  - Personal information manager

Examples of Computer Usage

What are the needs of the large business user?

Web access

Public kiosk

Network
Productivity software
Scheduling

Telecommuting

Examples of Computer Usage

What are the needs of a power user?

- Speed and large amounts of storage
- Types of power users
  - Engineers
  - Architects
  - Desktop publishers
  - Graphic artists

REVIEW FOR TEST #1 ☺

TERMS & CONCEPTS:

1. Hardware & Software examples? Main components on the motherboard?
2. Different Types of Computers? What is a PDA?
3. Input Devices, Processing Devices, Output Devices, Storage Devices
4. What is a Chip?
5. Data? Information? Instructions?
6. What is a Modem?
7. Server?
8. What is a Word Processor Program? Spreadsheet program? Database Program? Presentation Graphics Program?
9. What is a software suite?
10. What do Programmers do?
11. What is a LAN? WAN? MAN? Internet?
12. What can you do on the Internet? What is a Web Site?
13. What is the WWW? Link? Browser Program?
14. What are some different types of computers? Notebook Computer?
15. What is a Power User?

WINDOWS

16. GUI? How does windows start? Default settings?
17. What are the Elements of the Windows XP desktop? Icon? Taskbar? Quick Launch Toolbar? Program button? System tray or notification area? My Computer?
18. What is Pointing? Screen Tips? What is the Pointer? What are some different pointer shapes?
19. What are some Mouse Commands?
20. What does a click do? Right-click? Double-click? Drag? Right drag?
21. What is Multitasking? How do you switch back and forth between multiple programs? How do you select a program? Exit program?
22. Identify the parts of a window: Title bar? Menu bar? Toolbar? Address bar? Vertical Scroll bar? Horizontal Scroll Bar? Status bar? Minimize button? Maximize button? Restore? Close button? Document window? etc…
23. How do you move a window? Resize a window? What is the sizing handle? Open a Window?
24. Menu items: Shortcut? Grayed items? Ellipsis? Check mark? What is a Submenu?
25. Dialog Box items: Text box? List box? Tab? Option button? Check box?
26. How do you shut down Windows?
27. What is Windows Help? Where is it? What does the Support button provide? Index? Home?
28. What is on the Start Menu? My recent documents?
29. How do you open a file? Rename a file? Delete a file? Move a file? Copy a file?
30. What does the file extension indicate? .doc? .txt? .xls? .ppt?
31. What characters can NOT be used in a Filename
32. What different file views are there? Icons? List? Details? Thumbnail?
33. What is print preview? Word wrap? Insertion point?
34. Where is Page Setup located?
35. Where is the Undo button? What does it do?
36. What does Formatting do? Where do you go to do this?
37. Folder? File? How do you Expand a folder? What does the plus sign mean? View the contents of a folder? Rename a folder or file? Delete a folder or file?
38. What is the designation letter of first hard drive? Floppy drive?