MASTERY SERIES

Microsoft® Office 2010 ESSENTIALS

Lesson 1: Computer Concepts

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Learning Objectives

- After studying this lesson, you will be able to:

  - ▲ Identify the basic parts of a computer system

  - ▲ Describe the difference between random access memory and storage memory

  - ▲ Identify whether a component of the computer system is hardware or software

  - ▲ Describe the role of an operating system in a computer

  - ▲ Describe the difference between application program files and user data files

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Categorizing Computer Systems

- Two basic categories of components

    - Hardware – physical components

    - Software – logical components

- Four categories of systems

    - Desktop

    - All-in-One

    - Notebook

    - Netbook

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Units of Measure

Volume/Capacity Units

Unit	Meaning	Capacity Examples
Bit	Zero or one	1,0
Byte	One character	A, B, C, D, &, @
Kilobyte (KB)	Thousand bytes	Two paragraphs of text
Megabyte (MB)	Million bytes	About 3 medium-length novels
Gigabyte (GB)	Billion bytes	About 250-500 digital photos
Terabyte (TB)	Trillion bytes	About 120 hours of HD video

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Units of Measure

- **Resolution Units**
  - ▲ Resolution (monitor) 1600x900
  - ▲ Screen Size
- **Resolution (printer)**
  600 dpi (dots per inch)

1600 pixels horizontally

20" measured diagonally

900 pixels vertically

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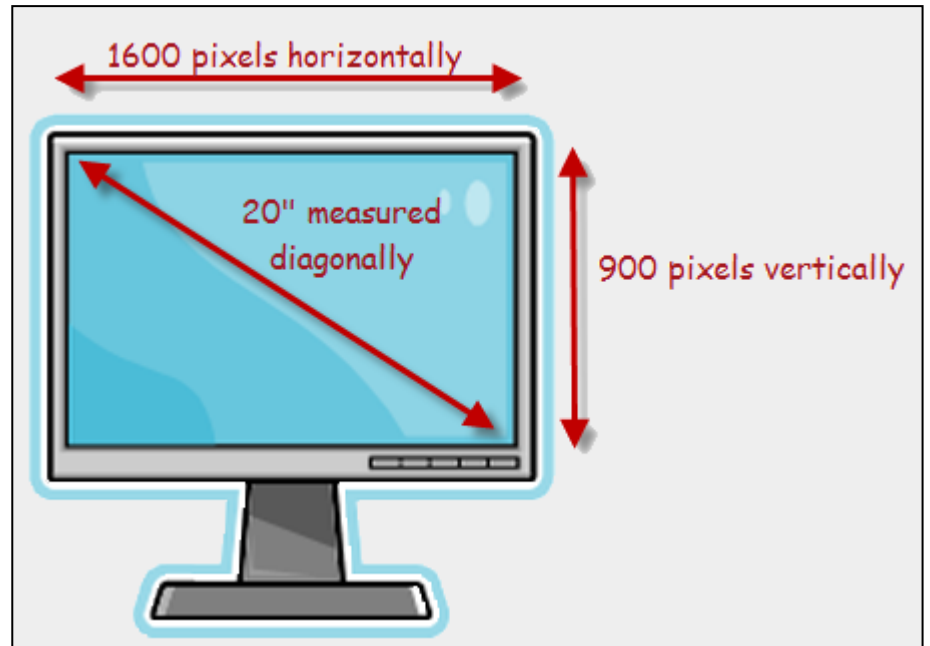
Units of Measure

- **Processor speed unit**

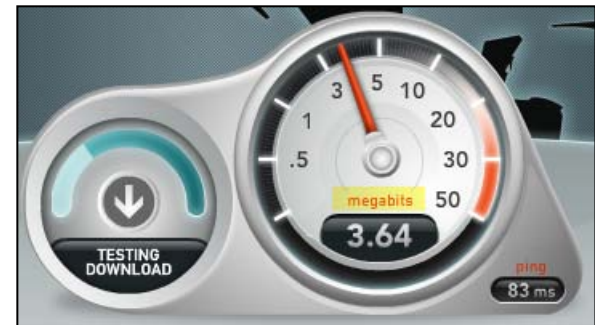 - ▲ Gigahertz (GHz) – processor speed
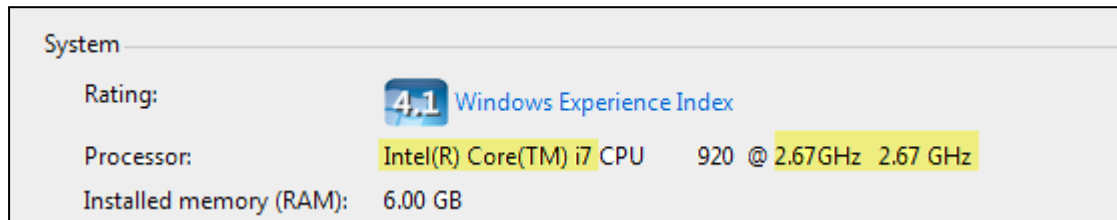
- **Modem speed unit**

  - ▲ Bits per second (bps)

  - ▲ Megabits per second (Mbps)

An online Internet speed test

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Computer Hardware Categories

■ Each hardware category plays a key role:

▲ Processing

▲ Storage
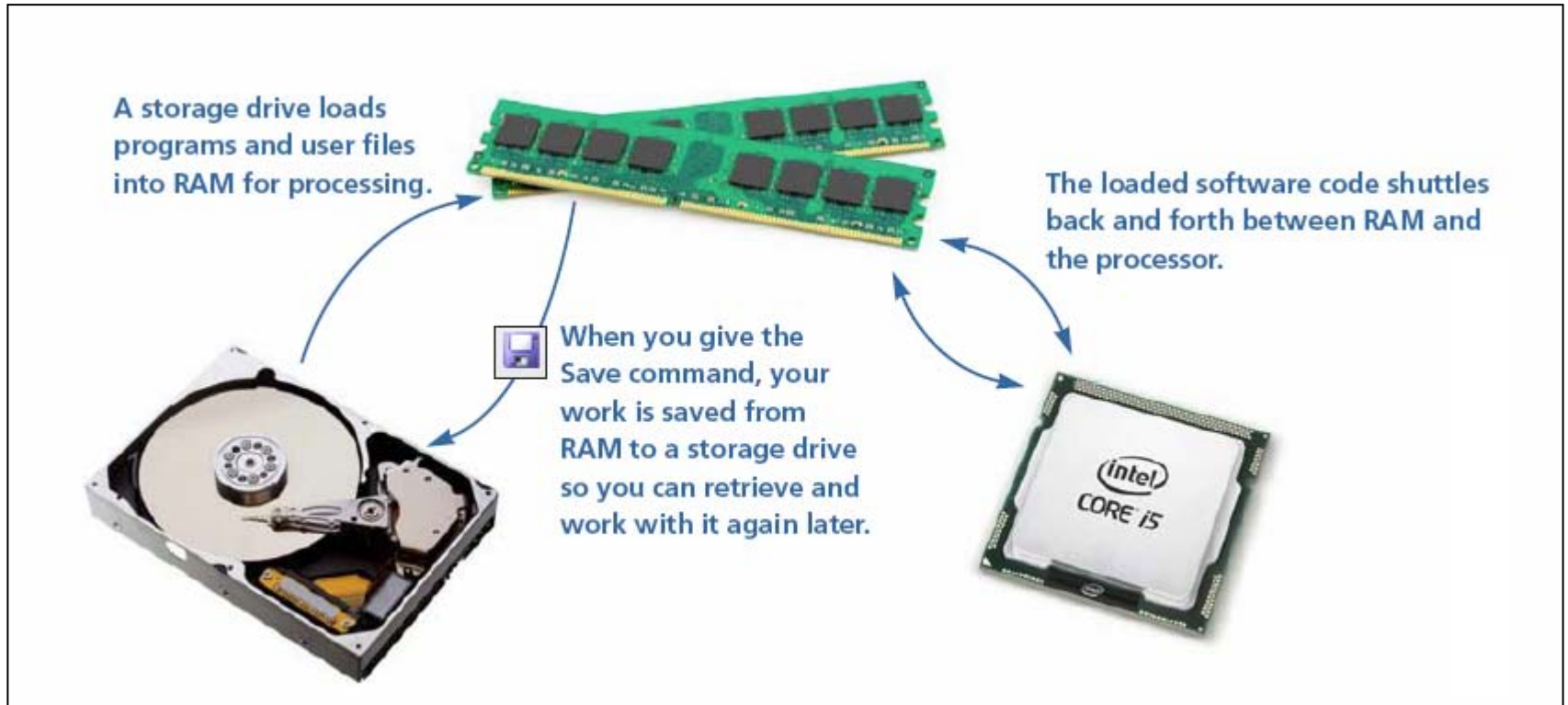
▲ Viewing/Printing

▲ Networking

▲ Human Interface

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Processing Hardware

- Processor
  - ▲ Multi-core
  - ▲ Single-core

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Processing Hardware

- RAM – The Computer's Workbench

A storage drive loads programs and user files into RAM for processing.

The loaded software code shuttles back and forth between RAM and the processor.

When you give the Save command, your work is saved from RAM to a storage drive so you can retrieve and work with it again later.

intel CORE i5

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Processing Hardware

■ RAM and Performance

▲ More RAM allows you to run more programs at once efficiently

Physical Memory (MB)	
Total	4087
Cached	1754
Available	2091
Free	399
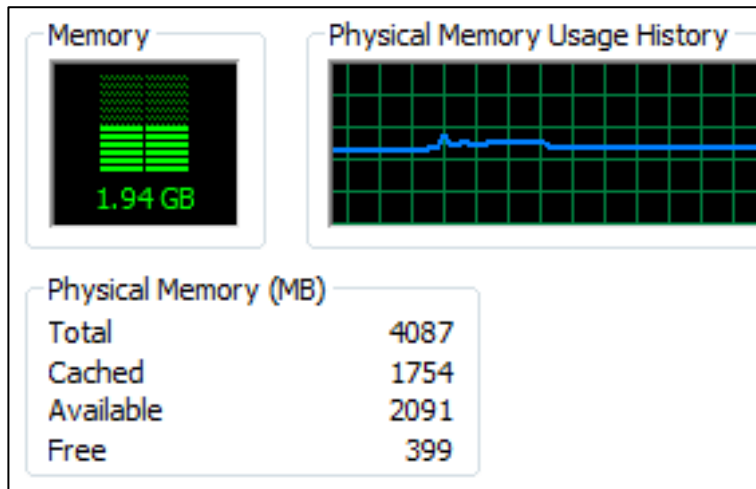
The Windows Task Manager keeps track of how much RAM is available for processing

Storage Hardware

- Hard disk drive

- Optical Disc drive (CD, DVD, Blu-Ray)

- USB flash drive

- Solid-state drive (SSD)

- Additional Storage
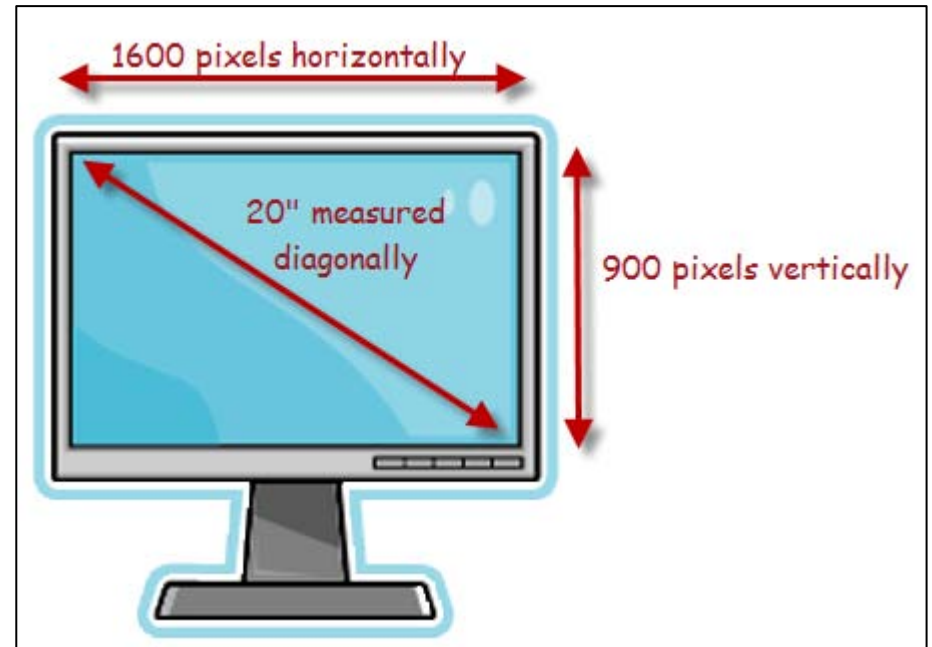
  - ▲ External Drives

  - ▲ Card Readers

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Viewing and Printing Hardware

- **LCD Monitors**
  - ▲ Measuring Size
  - ▲ Measuring Resolution
  - ▲ Native Resolution
- **Printers**
  - ▲ Ink Jet
  - ▲ Laser
  - ▲ All-in-One

1600 pixels horizontally

20" measured diagonally

900 pixels vertically

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Networking Hardware

- **Modem**
  - ▲ Cable
  - ▲ DSL
  - ▲ Dial-up
- **Router/Wireless Access Point**
  - ▲ Wireless-B
  - ▲ Wireless-G
  - ▲ Wireless-N

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Human Interface Hardware

- Mouse
- Touchpad
- Keyboard
- Touch screen
- Pen tablet
- Trackball

A Wacom Intuos pen tablet

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Human Interface Hardware

■ USB ports connect all manner of devices to the computer: keyboards, printers, USB flash drives, etc.

■ USB port types

▲ USB 1.0

▲ USB 2.0

▲ USB 3.0

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Human Interface Hardware

■ Webcam

▲ Allows you to capture and transmit video and audio

▲ Built into most new notebook and netbook computers
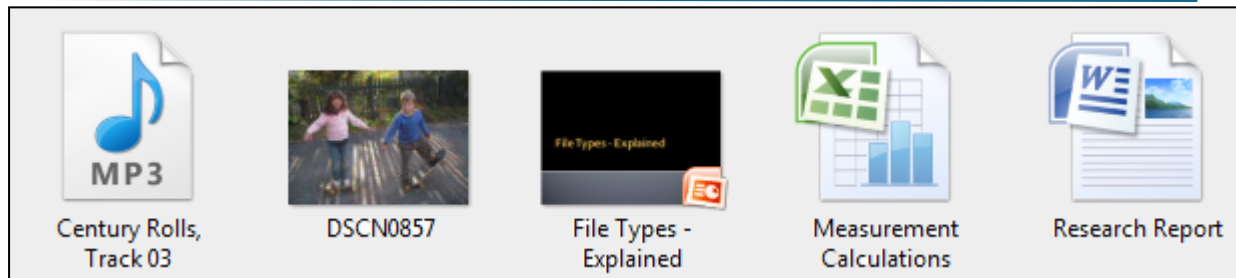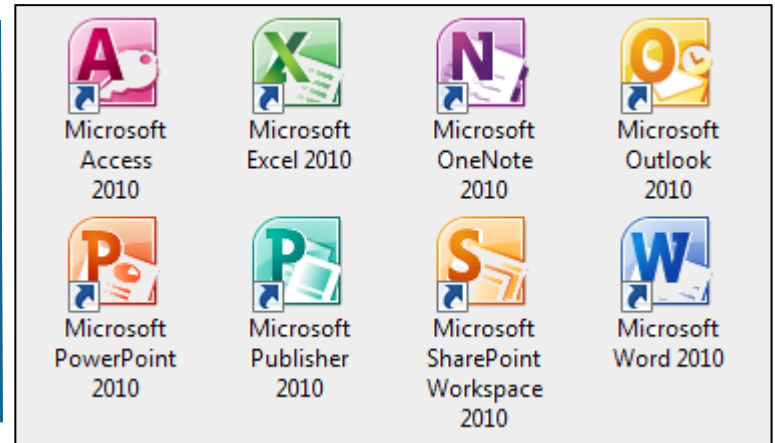
▲ Easily added to desktop computers

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Computer Software

- Three basic software types:

  - ▲ Operating system —

  - ▲ Application programs —

  - ▲ User data

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Computer Software

■ Operating system roles

▲ Interpreting commands

▲ Controlling hardware

▲ Keeping track of all files

▲ Running application programs

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Computer Software

- **Windows Versions**

  - ▲ XP – Released in 2001 ![start]

  - ▲ Vista – Released in 2006

  - ▲ 7 – Released in 2009

- **64-bit versions**

  - ▲ Can control more RAM (more than 4 GB)

  - ▲ Need 64-bit drivers (software) to control hardware

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Computer Software

■ Application Program Categories

| Category	Description	Examples
Proprietary (Commercial)	Applications for which you must purchase a license in order to use legally	Office 2010 Suite Photoshop
Shareware	Applications you are allowed to install and use without paying for initially; if you continue to use the software, you are required or expected to pay a license fee	WinZip SnagIt PDFCreator Xnote Stopwatch
Freeware	Free applications you do not have to pay for no matter how much you use them; these applications are still copyrighted, however, which means others can't turn around and try to sell the freeware program themselves	Jing Firefox Star Office
Malware	Often called *viruses*, these are applications designed to harm your computer.	MyDoom Code Red Blaster

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Computer Software

- Application program types

  - ▲ Word processor (Word)

  - ▲ Spreadsheet (Excel)

  - ▲ Database (Access)

  - ▲ Presentation (PowerPoint)

  - ▲ Email/personal information (Outlook)

  - ▲ Web browsing (Firefox, Internet Explorer)

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Computer Software

- **Anti-malware**

  - ▲ Protects against computer viruses and various types of intrusions

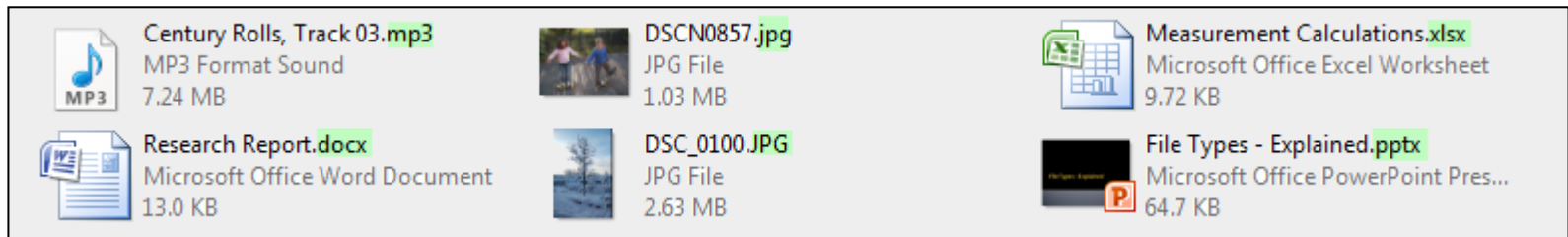 - ▲ Absolutely necessary for any computer connected to the Internet

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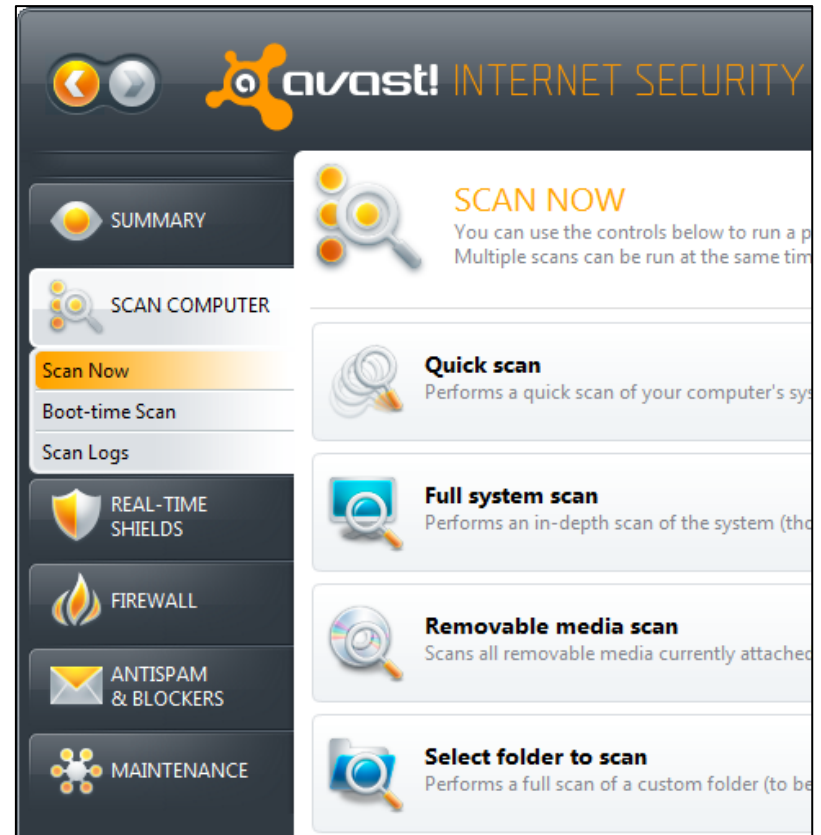
Computer Software

- User files – store you work

  - ▲ File formats

    - ◆ Indicated by a filename extension (normally hidden)

    - ◆ Tell Windows which program to open a file with

Century Rolls, Track 03.mp3 MP3 Format Sound 7.24 MB	DSCN0857.jpg JPG File 1.03 MB	Measurement Calculations.xlsx Microsoft Office Excel Worksheet 9.72 KB
Research Report.docx Microsoft Office Word Document 13.0 KB	DSC_0100.JPG JPG File 2.63 MB	File Types - Explained.pptx Microsoft Office PowerPoint Pres... 64.7 KB

The normally hidden filename extensions are displayed for these user files

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