Chapter 2

Peripheral Devices

What's Inside? ↘

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Instructor's Notes

Chapter overview

In this chapter your students will get an overview of the most popular peripheral devices for personal computers. It begins with standard input devices – the computer's keyboard and mouse – and then takes a look at some specialized input devices including trackpads, digital cameras, and joysticks. Students will also learn about output devices, such as computer display devices and printers. Specialized output devices, such as voice synthesizers and plotters, are also explained.

Chapter outline

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What are the options for standard input devices?	22	Keyboard, editing keypad, function keys, numeric keypad, pointing device, mouse, pointing stick, trackpad, trackball
What are the options for specialized PC input devices?	23	Joystick, digital camera, digital video camera, graphics tablet, digitizing tablet, light pen, scanner, speech recognition
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What are the most popular printer technologies?	26	Ink jet printer, laser printer, resolution, DPI, Duty cycle, operating cost, memory, Printer Control Language (PCL), PostScript
What are the options for specialized output devices?	29	Plotter, voice synthesizer, computer projection device
How do I connect peripheral devices to my computers?	30	Ports, USB, wireless connections, Wi-Fi, expansion card, device driver, Plug and Play
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Technical notes

Your *Practical Computer Literacy* book includes an action-lacked **multimedia Book-on-CD**. Each page of the Book-on-CD looks exactly like its corresponding page in the printed book and contains interactive elements such as pop-up definitions, interactive animations, and interactive end-of-chapter material. The Book-on-CD is easy to use at home, at school, or at work. For more information on the Book-on-CD, please reference the preface of this book.

The following Materials Needed section is the same for each chapter of *The Practical Computer Literacy.* This information is repeated in each chapter for your convenience.

Materials needed

Windows 95, 98, Me, 2000, or XP installed on the lab computers. *The Practical Computer Literacy* Book-on-CD is optimized for use with Windows 95, Windows 98, Windows Me, Windows 2000, and Windows XP. Note that *The Practical Computer Literacy* Book-on-CD will *not* work acceptably on computers installed with Windows 3.1.

Tracking Disk. You can have students create a Tracking Disk, which records their scores on the Skill Sets, so that you can monitor their progress. When you start a Skill Set, the program checks drive A: for a Tracking Disk. If you want to create a Tracking Disk, insert a formatted floppy disk, then click **Create Tracking File A:\TRACKING.TRK**. You'll be prompted to enter your name, student ID, and section number, all of which will be stored on the Tracking Disk. If you don't want to save your results, just click **Continue without a Tracking Disk**. This option allows you to try a Skill Set review without saving your results. For more information on the Tracking Disk, please reference the preface of this book.

Project Disk. For many of the projects, your students must create a Project Disk, onto which they copy project files and save their completed work. Students create their own Project Disk by inserting a blank, formatted floppy disk in drive A (or the appropriate drive), clicking Project Disk menu option on the Welcome screen of *The Practical Computer Literacy* CD-ROM, clicking the menu option for the assigned project, and then following the instructions to copy the project file to the blank floppy disk. A second method is to click the Copy It! button on the first page of the project to copy the file for that project to their floppy disk.

You can specify whether students submit the disk for your review, submit their printed completed project, or send you their completed file as an e-mail attachment. For e-mail submission, students will need your e-mail address.

This chapter assumes your students have access to a lab (or home) computer and have previously used a mouse.

Content and Certification. With the increasing presence and use of computers in both school curriculum and the workplace- there is a growing need to evaluate and measure computer

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skills through a set of certification standards. *Practical Computer Literacy* integrates computer concepts, Office applications, and Internet concepts making it the perfect solution for your introductory computer needs.

The content of the text and Book-on-CD maps to the certification standards for IC3 (Internet and Computing Core Certification). This certification is a set of 3 exam modules including: Computing Fundamentals, Key Applications, and Living Online.

Even if you don't use IC3 certification, *Practical Computer Literacy* is a good fit for many other certification standards developed by industry, your state, or your school. For more information on how *Practical Computer Literacy* can work with your course or for more information on certifications such as IC3 and ICDL, contact your Course Technology Sales Representative, or go to www.course.com.

Instructional notes

Key terms

Color depth (26): The number of colors a monitor can display. Also called bit depth.
Computer projection device (29): Uses digital light processing technology to display a computer-generated image on a large screen.
CRT (cathode ray tube) (25): Display technology that uses a glass tube like a television does.

Device driver (31): Software that sets up communication between your computer and a peripheral device.
Digital camera (23): A peripheral device used to capture still images in a digital format.
Digital video camera (23): A peripheral device used to capture moving images in a digital format.
Digitizing tablet (23): A peripheral device that looks similar to a graphics tablet, but can be much larger in size.
Dot pitch (dp) (25): A measure of image clarity.

Editing keypad (22): Area of the keyboard that includes keys for moving the screen-based insertion point.

Function keys (22): Keys designed for computer-specific tasks.

Graphics card (26): Contains circuitry that generates the signals for displaying an image on the screen.
Graphics tablet (23): A peripheral device that features a pressure-sensitive surface and pen for free-hand drawing.

Inkjet printer (27): A printer with a nozzle-like print head that sprays ink onto paper to form characters and graphics.

Joystick (23): Input device that looks like the stick shift in a car.
Laser printer (27): A printer that uses the same technology as a photocopier to paint dots of light on a light-sensitive drum.

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LCD (Liquid crystal display) (25): Display technology that produces an image by manipulating light within a layer of liquid crystal cells.
Light pen (24): A peripheral device that uses a light–emitting pen and a screen-based light-sensitive detector for directly pointing to and selecting objects on a display screen.

Mouse (22): The primary pointing device on standard desktop computers.

Numeric keypad (22): Calculator-style keys on most keyboards.

Peripheral device (21): Any input or output component that connects to a computer's system unit.
Pixels (25): The small dots of light that form an image.
Plasma screen (25): Technology that creates an on-screen image by illuminating miniature colored fluorescent lights arrayed in a panel-like screen.
Plotter (29): A special type of printer designed to produce line drawings, such as blueprints.
Plug and Play (31): A feature that automatically takes care of the technical details of installing peripheral devices.
Pointing device (22): Allows you to manipulate an on-screen pointer and other screen-based graphical controls.
Pointing stick (22): Space-saving device in the keyboard of notebook computers that you can push up, down, or sideways to move the on-screen pointer.
PostScript (28): An alternative printer language preferred by many publishing professionals.
Printer Control Language (PCL) (28): The most widely used language for communication between computers and printers.

Scanner (24): A peripheral device that converts printed images into bitmap graphics that can be viewed and edited with graphics software.
Screen resolution (26): The number of horizontal and vertical pixels that a device displays on a screen.
Screen size (25): The measurement in inches from one corner of the screen diagonally across to the opposite corner.
Speech recognition (24): Allows you to dictate commands and data using a microphone, instead of a keyboard and/or mouse.

Trackball (22): A pointing device on which you use your fingers, thumb, or palm to roll the ball.
Trackpad (22): A touch-sensitive surface on which you can slide your fingers to move the on-screen pointer.

USB (universal serial bus) (30): The preferred way to connect peripheral devices.

Video memory (26): Stores screen images as they are processed, but before they are displayed.
Viewable image size (vis) (25): The actual display area of a monitor.
Viewing angle width (25): The measure of how far to the side you can still clearly see the screen image.
Voice synthesizer (29): Converts digital text into audio output.

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Lecture notes

What is a peripheral device?

In this section, students learn that a peripheral device is any input or output component that connects to a computers system unit. Standard peripheral devices on a personal computer include a keyboard, mouse, display unit, and printer. Specialized peripheral devices are a key component of many large-scale computer systems. These specialized peripheral devices are critical to corporations, banks, shipping firms, retail stores, and almost every type of large operation.

Have students list examples of specialized peripherals they encounter in everyday life, such as the UPC scanners used at the grocery store check-out.

What are the options for standard input devices?

The keyboard is the most important input device. In addition to the basic typing keys, keyboards typically include and editing keypad, function keys, and a numeric keypad.

A standard desktop computer includes a mouse as its primary pointing device. A pointing device allows you to manipulate an on-screen pointer and other screen-based graphical controls. Other pointing devices include a pointing stick, trackpad, and trackball.

What are the options for specialized PC input devices?

Most computer owners have at least one specialized input device for playing computer games, taking photos, making movies, or scanning images. Although there is a very wide selection of input devices, the following are some of the most popular:

- Joystick
- Digital camera
- Digital video camera
- Graphics tablet
- Digitizing tablet
- Light pen
- Microphone

TIP: If possible, point out the specialized peripheral devices on the classroom computer.

What are the most popular display technologies?

Display devices are usually, but not always, classified as output devices because they show the results of a processing task. Today's most popular PC displays use CRT, LCD, and plasma technologies.

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TIP: Have students identify which type of display technology the classroom computer(s) use.

Review with students the factors to consider in selecting a display device. These factors include:

- Screen size
- Dot pitch
- Viewing angle width
- Color depth
- Screen resolution

What are the most popular printer technologies?

Today's best-selling printers typically use ink jet or laser technology. Ink jet printers have a nozzle-like print head that sprays ink onto paper to form characters and graphics. Laser printers use the same technology as a photocopier to paint dots of light on a light-sensitive drum. Laser printers are often the choice for those who produce a high volume of printed material.

Things to consider when selecting a printer are:

- DPI
- Print speed
- Duty cycle
- Operating cost
- Memory

What are the options for specialized output devices?

Remind students that output devices range from speakers used to listen to music on a computer to very specialized equipment for specific tasks, such as plotters. A plotter is a special type of printer designed to produce line drawings, such as blueprints. A couple other examples of specialized output devices are voice synthesizers and computer projection devices. Highly specialized output devices are typically used by organizations rather than individuals.

TIP: Have students list specialized output devices they've used or seen in their work environments.

How do I connect peripheral devices to my computer?

Most personal computers include a variety of built-in ports for connecting peripheral devices, as shown in figure 2-11 in the text.

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Today, USB (universal serial bus) is the preferred way to connect peripheral devices. Windows automatically recognizes most USB devices, which makes installation simple. On many computers, USB ports are conveniently located on the front of the system unit.

Explain to students that the connection between the computer and peripheral does not necessarily require wires. Two popular wireless technologies are Wi-Fi and Bluetooth.

If a peripheral device requires a port that is not available on your computer, you might have to install an expansion card.

TIP: If possible, open a classroom computer and show students how to plug an expansion card into an expansion slot inside the system unit.

Explain that some devices require a device driver and that some drivers are available for download on the Internet. Also discuss Plug and Play technology, which automatically installs a peripheral device when the device is plugged into the computer.

How do I select components for my computer system?

Review the following guidelines for computer, software, and peripheral device purchases.

- Consider the tasks for which you'll use the computer.
- Determine your budget.
- Select your computer platform.
- Choose a desktop, notebook, or tablet configuration.
- Select processor type and speed.
- Select an operating system.
- Consider your storage needs.
- Consider RAM and video memory capacity.
- Evaluate the computer's upgradeability
- Select software.
- Select peripheral devices and accessories.
- Evaluate manufacturer and vendor support and warranty.

Solutions to QuickChecks ↘

Solutions to QuickCheck A

1. scanner
2. ray
3. RAM (memory)

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4. T (True)
5. F (False)

Solutions to QuickCheck B

1. A (1)
2. A (1)
3. B (2)
4. B (2)
5. A 91)

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