

S A W Y E R • W I L L I A M S

fourth edition

using information technology

intro



A PRACTICAL INTRODUCTION TO COMPUTERS & COMMUNICATIONS

Fourth Edition

Using Information Technology

A Practical Introduction
to Computers & Communications

Introductory Version

Stacey C. Sawyer

Brian K. Williams



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USING INFORMATION TECHNOLOGY

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About the Authors

Who are **Stacey Sawyer and Brian Williams**? We are a married couple living near Lake Tahoe, Nevada, with an avid interest in seeing students become well educated—especially in information technology.

What best describes what we do? We consider ourselves **watchers and listeners**. We spend our time *watching* what's happening in business and society and on college campuses and *listening* to the views expressed by instructors, students, and other participants in the computer revolution. We then try to translate these observations into meaningful language that can be best understood by students.

Over the past two decades, we have individually or together **authored more than 20 books** (and 30 revisions), most of them on computers and information technology. Both of us have **a strong commitment to helping students succeed in college**. Brian, for instance, has also co-authored four books in the college success field: *Learning Success*, *The Commuter Student*, *The Urban Student*, and *The Practical Student*. Stacey has an interest in language education and has worked on several college textbooks in English as a Second Language (ESL) and in Spanish, German, French, and Italian. We thus bring to our information-technology books an awareness of the needs of the increasingly diverse student bodies now in our colleges.

Stacey has a B.A. from Ohio Wesleyan and the University of Freiburg, Germany, and an M.A. from Middlebury College and the University of Mainz, Germany. She has taught at Ohio State University and managed and consulted for a number of for-profit and nonprofit health, educational, and publishing organizations. Brian has a B.A. and M.A. from Stanford University and has held managerial jobs in education, communications, and publishing.

In our spare time, we enjoy cooking, travel, music, and exploring the wilds of the American West.



To the Instructor

Introduction

Information technology—“now as vital as the air we breathe,” as one observer says—is the major revolution of our time. Rolling inexorably forward, it is redefining entire industries, changing the nature of work and leisure, altering conventional meanings of time and space.

The Fourth Edition of *USING INFORMATION TECHNOLOGY* puts the reader in the front row of this revolution. UIT is a concepts textbook to accompany a one-semester or one-quarter introductory course on computers or microcomputers. This eight-chapter *Introductory Version*, which replaces the previous edition's *Brief Version*, though it is about the same length, is intended for people who will use computers as everyday tools, not those who will write programs or design computer systems. (A longer edition—11 chapters—is available as the *Complete Version*, which corresponds to the full-size version of the previous edition of our text.)

About Our Book: A New Identity—“A Book Reborn, Not Revised”

We consider this edition of *USING INFORMATION TECHNOLOGY* to be **a book reborn**, not merely revised. The book's **new identity** is embodied in several new features—many of which were **requested by instructors**—as explained below under “What's New in This Edition?”

What Users Liked #1: Emphasis on Role of Communications in Computing

Earlier editions of this book broke new ground by emphasizing the role of the Internet and of digital convergence, the technological fusion of computers and telecommunications. This theme was enthusiastically received by both students and instructors.

But **telecommunications is now taking new forms**, which we describe in this edition.

- **Moving beyond the PC:** We appear to be moving beyond the personal computer. Companies are launching a slew of simplified electronic devices that do only one or two tasks, such as checking e-mail or surfing the Web—devices uncomplicated enough to attract online users in the more than 60% of U.S. households without Internet access. Cellphones, palm computers, and information appliances are now being produced that we can use not only for communicating but also for surfing, shopping, and banking.
- **The Internet becomes personal:** The World Wide Web is more and more becoming a personal resource, from getting help with advancing careers and finances to finding relationships and spirituality.
- **The coming “Omninet”:** Because of wireless communication, we are fast approaching the day when the Internet becomes such an all-pervasive presence that, like telephones and television, we will almost forget that it is there.

[See examples pp. 5, 73.]

[See examples pp. 72, 296.]

[See examples pp. 4, 214.]

What Users Liked #2: Emphasis on Practicality

A feature that has been well received by instructors and students using past editions is that we not only cover fundamental concepts but also offer a great deal of **practical advice**. This advice, of the sort found in computer magazines and general-interest computer books, is not only expressed in the text but also in the box **Bookmark It! Practical Action Box**. This box consists of optional material on practical matters. *Examples*: “Tips for Managing Your E-Mail.” “Choosing an Internet Service Provider.” “Being Successful at Distance Learning.”

[See examples pp. 42, 272.]



Ethics

What Users Liked #3: Emphasis throughout on Ethics

Many texts discuss ethics in isolation, usually in one of the final chapters. We believe this topic is too important to be treated last or lightly, and users have agreed. Thus, **we cover ethical matters throughout the book**, as indicated by the special logo shown here in the margin. *Examples*: We discuss such all-important questions as copying of Internet files, online plagiarism, privacy, computer crime, and netiquette. (A list of pages with ethics coverage appears on the inside front cover.)

[See examples pp. 23, 48, 255.]

What Users Liked #4: Emphasis on Reinforcement for Learning

Prior editions of our book offered the following features for reinforcing student learning:

- **Interesting writing**: Studies have found that textbooks **written in an imaginative style** significantly improve students' ability to retain information. Both instructors and students have commented on the distinctiveness of the writing in this book. We employ a number of journalistic devices—colorful anecdotes, short biographical sketches, interesting observations in direct quotes—to make the material as interesting as possible. We also use real anecdotes and examples rather than fictionalized ones.
- **Key terms AND definitions emphasized**: To help readers avoid any confusion about which terms are important and what they actually mean, we print each key term ***bold italic underscore*** and its definition in **boldface**. *Example* (from Chapter 1): “***Data* consists of raw facts and figures that are processed into information.”**
- **Material in bite-size portions**: Major ideas are presented in **bite-size form**, with generous use of advance organizers, bulleted lists, and new paragraphing when a new idea is introduced. Most **sentences have been kept short**, the majority not exceeding 22–25 words in length.

[See examples pp. 127, 211.]

[See example p. 106.]

[See example p. 107.]

What's New in This Edition?

A great number of brand-new features are to be found in this edition—most of which were suggested by instructors in conversations, reviews, and round-table discussions. As stated, we think they make this edition “a book reborn, not revised.”

What Users Requested #1: New Organization & New Emphasis on “E-Concepts”

In accordance with instructor suggestions, **we reorganized the table of contents to permit greater treatment of “e-concepts.”**

Because the Internet and the World Wide Web are now so widespread—all students have seen the terms “www” and “dot-com,” and most students are already online—many instructors have told us they would like to see “**e-concepts**” **treated earlier and more extensively** in the book. Accordingly, we have revised the table of contents as follows:

How the Table of Contents Has Changed

Chapters in the Present Edition	Chapters in the Previous Edition
1. Introduction to Information Technology	1. The Digital Age
2. The Internet & the World Wide Web	2. Applications Software
3. Software	3. System Software
4. Hardware	4. Processors
5. Telecommunications	5. Input & Output
6. E-Commerce, Files, & Databases	6. Storage & Databases
7. The Challenges of the Digital Age	7. Telecommunications
8. The Promises of the Digital Age	8. Communications Technology
Appendix. Systems & Programming	9. Systems
	10. Society & the Digital Age

Instructors will note the following changes:

- The Internet and World Wide Web are now discussed in Chapter 2 instead of Chapter 7, reflecting their importance in students’ daily lives.
- Communications technology is now discussed earlier—in Chapter 5 instead of Chapter 8.
- Software is now discussed in one chapter instead of two.
- Hardware is now discussed in one chapter instead of three.
- Files and databases are discussed within the framework of e-commerce. (Storage is discussed as part of hardware.)
- The challenges and promises of the digital age, especially the “e-concepts,” are discussed in two chapters instead of one.
- Information systems, programming, and languages are discussed in an appendix. (Some instructors don’t cover these concepts in their courses.)

What Users Requested #2: A Much More Visual Book—Many More Illustrations Designed to Aid Student Learning

In this edition we have **increased the number of visuals—particularly artwork designed to aid student learning**, so that there is a significantly increased ratio of illustrations to text.

Specifically, we offer artwork—both line art and photographs—to serve the following purposes:

- **Artwork to illustrate how to use software:** In this edition, we don’t just describe Web browser or word processing commands, for example. We show visually how menus, toolbars, icons, and similar features work.
- **Artwork to illustrate how hardware works:** In Chapter 1, we ask readers to **pretend to build their own PC**—and we provide illustrations to show how the pieces go together. In Chapter 4, we present a more complex example. We show **an advertisement for a PC**—and then explain the ad by repeating its hardware features along with specific illustrations describing what they mean and how they work.

[See example p. 118.]

[See examples pp. 13, 18.]

[See examples pp. 147, 150.]

- Photos to show what's exciting and unique about the Digital Age: Many textbooks have photos showing how computers are used in ordinary ways, and we do also. But to whet student interest, we also show **how computers are used in interesting, uncommon ways.**

[See examples pp. 22, 256, 285.]

What Users Requested #3: Help Students Think Critically about Information Technology & Take Ownership over the Material

More and more instructors are becoming familiar with the taxonomy of educational objectives encompassing critical-thinking skills. These skills are organized in the following hierarchy: (a) *memorization*, (b) *comprehension*, and (c) *application, analysis, synthesis, and evaluation*.

Drawing on our experience in writing books to guide students to college success, we have implemented a **novel pedagogy to reinforce learning and help students take ownership over the material.** We use the following hierarchical approach in both text and supplements:

First level—memorization. Tests how well reader recalls basic terms and concepts.

Second level—comprehension. Tests how well reader understands concepts and integrates ideas.

Third level—application, analysis, synthesis, evaluation. Tests higher-order critical-thinking skills, including the ability to solve problems and make decisions.

The following are some pedagogical features that incorporate this three-tier hierarchy of critical thinking skills.

- **Key Questions—to help students read with purpose:** We have **crafted the learning objectives as Key Questions** to help readers focus on essentials. Each Key Question appears in two places: on the first page of the chapter, and beneath the section head. Key Questions are also tied to the end-of-chapter summary, as we will explain.
- **Chapter visual overview—"Graphical Interface":** Each chapter opens with a two-page **visual overview of chapter concepts**, so that students can have a "pictorial road map" of the contents of the chapter before they begin reading. This "Graphical Interface: A Visual Overview of This Chapter" may also be used as a study aid to review concepts.
- **Concept Checks:** Appearing periodically throughout the text, **Concept Checks** spur students to recall facts and concepts they have just read.
- **Visual Summary:** Each chapter ends with an innovative **Visual Summary** of important terms, with an explanation of what they are and why they are important. The terms are accompanied, when appropriate, by a picture. Each concept or term is also given a cross-reference page number that refers the reader to the main discussion within the text. In addition, the term or concept is given a Key Question number corresponding to the appropriate Key Question (learning objective).
- **Chapter Review:** The end-of-chapter **Chapter Review** is constructed according to the three levels of educational objectives.

First level—memorization. Self-Test (fill-in) Questions, Multiple-Choice Questions, and True/False Questions. Tests how well the reader recalls basic terms and concepts.

Second level—comprehension. Short-answer questions and concept maps. Tests how well the reader understands concepts and integrates ideas.

[See examples pp. 31, 34.]

[See examples pp. 32–33.]

[See example p. 51.]

[See example p. 25.]

[See examples pp. 81–82.]

Third level—application, analysis, synthesis, evaluation. Knowledge in Action questions. Tests higher-order critical-thinking skills, including the ability to solve problems and make decisions.

The Student Online Learning Center

For each chapter, the student **Online Learning Center** offers both a review of the text material, in the form of an **e-learning session**, and additional exercises organized around the following themes:

- Group/team projects
- Internet/Web-related content
- Mini-case studies of actual companies
- Profiles of careers that are influenced by information technology

The content and activities further establish the three-level approach.

Resources for Instructors

We understand that, in today's teaching environment, offering a textbook alone is not sufficient to meet the needs of the many different instructors who use our books. To teach effectively, instructors must have a full complement of supplemental resources to assist them in every facet of teaching from preparing for class to conducting and lecture to assessing students' comprehension. *Using Information Technology* offers a complete, fully integrated supplements package, as described below:

Instructor's Resource Kit

The Instructor's Resource Kit contains a printed Instructor's Manual and a CD-ROM containing the Instructor's Manual in both MS Word and .pdf formats, PowerPoint slides, Brownstone's Diploma test generation software, and accompanying test item files for each chapter. The distinctive features of each component of the Instructor's Resource Kit are described below.

- **Instructor's Manual** Prepared by Kerry Thompson of Digital Light Studios, the Instructor's Manual contains learning objectives, a Chapter Outline with lecture notes, a list of the chapter competencies, tips for covering difficult material, and answers to the Concept Checks. Also included are references to corresponding topics on the Interactive Companion CD-ROM, answers to all the exercises in the Chapter Review section, and answers to the On the Web Exercises. The manual also includes a helpful introduction that explains the features, benefits, and suggested uses of the IM and an index of concepts and corresponding competencies.
- **PowerPoint Presentation** Prepared by Linda Mehlinger of Morgan State University, the PowerPoint presentation is designed to provide instructors with a comprehensive teaching resource and includes chapter learning objectives, concepts overviews, figures from the text, additional examples/illustrations, anticipated student questions with answers, discussion topics, and Concept Checks recalling key points throughout each chapter. Each chapter ends with key terms illustrating those key points.

- **Testbank** The *Using Information Technology* edition testbank contains over 3000 questions categorized by level of learning (definition, concept, and application). This is the same learning scheme that is introduced in the text to provide a valuable testing and reinforcement tool. The test questions are identified by text page number to assist you in planning your exams, and rationales for each answer are also included. Additional test questions, which can be used as pretests and posttests in class, can be found on the Online Learning Center, accessible through our supersite (www.mhhe.com/it).

Business Week Edition of Using Information Technology

An exciting new supplement with this edition of *Using Information Technology* is our *Business Week Edition*. With the purchase of a *Business Week Edition* of a McGraw-Hill/Irwin textbook, students will receive a 15-week subscription to *Business Week* for only \$8.25 more than the price of the book alone. Professors who adopt the *Business Week Edition* will enjoy a complimentary subscription for a full year to *Business Week* magazine and complimentary access to the Business Week Resource Center Web site (www.resourcecenter.businessweek.com) as well as Business Week Online through the duration of their subscription.

Students will also enjoy free access to the Business Week Resource Center Web site for the duration of their magazine subscription. The Business Week Resource Center Web site contains a wealth of supplemental materials, including the Business Week Online Archives. Students will have instant access to any business topic from the past ten years of *Business Week*—from 1991 to 2000. From the Resource Center, students may also access Business Week Online (www.businessweek.com) for current issues, online-only features, and career tips. Access to these sites provides a marvelous opportunity to increase students' Internet literacy as instructors explore new ways to integrate the Web into a wide array of student exercises and research projects.

Interactive Companion CD-ROM

This free student CD-ROM, designed for use in class, in the lab, or at home by students and professors alike includes a collection of interactive tutorial labs on some of the most popular topics in information technology. By combining video, interactive exercises, animation, additional content, and actual "lab" tutorials, we expand the reach and scope of the textbook.

Digital Solutions to Help You Manage Your Course

- **PageOut**—PageOut is our Course Web Site Development Center that offers a syllabus page, URL, McGraw-Hill Online Learning Center content, online exercises and quizzes, gradebook, discussion board, and an area for student Web pages. For more information, visit the PageOut Web site (www.mhla.net/pageout).
- **Online Learning Centers**—The Online Learning Center that accompanies *Using Information Technology* is accessible through our information Technology Supersite (www.mhhe.com/it). This site provides additional learning and instructional tools developed using the same three-level approach found in the text and supplements. This offers a consistent method for students to enhance their comprehension of the concepts presented in the text.

- **Online Courses Available**—OLCs are your perfect solutions for Internet-based content. Simply put, these Centers are “digital cartridges” that contain a book’s pedagogy and supplements. As students read the book, they can go online and take self-grading quizzes or work through interactive exercises. These also provide students appropriate access to lecture materials and other key supplements.
- **UIT Website**—The new Website that accompanies the fourth edition of *Using Information Technology* offers additional, text-specific resources to include: a sample chapter, an overview, Meet the Authors section, the preface, a What’s New section, a Feature Summary section, and links to professional resources. In addition, the Instructor’s Manual and PowerPoint Presentation slides can be downloaded from the instructor section of the site, located at www.mhhe.com/cit/uit4e.

Online Learning Centers can be delivered through any of these platforms:

McGraw-Hill Learning Architecture (TopClass)

Blackboard.com

ECollege.com (formerly Real Education)

WebCT (a product of Universal Learning Technology)

Office 2000 Application Series

Available for discount packaging, our **Advantage Series** leads students through the features of Microsoft Office 2000 with a critical-thinking, “what, why, and how” orientation. McGraw-Hill/Irwin also offers additional MS Office 2000 series to suit your teaching preference. Each MS Office series is Microsoft Office User Specialist (MOUS) certified.

Skills Assessment

McGraw-Hill/Irwin offers two innovative systems to meet your skills assessment needs. These two products are available for use with any of our applications manual series.

ATLAS (Active Testing and Learning Assessment Software)—Atlas is one option to consider for an application skills assessment tool from McGraw-Hill. Atlas allows students to perform tasks while working live within the Microsoft applications environment. ATLAS is Web-enabled, customizable, and is available for Microsoft Office 2000. **SimNet** (Simulated Network Assessment Product) is another option for a skills assessment tool that permits you to test students’ software skills in a simulated environment. SimNet is available for Microsoft Office 97 (deliverable via a network) and Microsoft Office 2000 (deliverable via a network and the Web). Both ATLAS and SimNet provide flexibility for you in your course by offering:

- Pre-testing options
- Post-testing options
- Course placement testing
- Diagnostic capabilities to reinforce skills
- Proficiency testing to measure skills

Acknowledgments

Two names are on the front of this book, but a great many others are important contributors to its development. First, we wish to thank our publisher, David Brake, for his support and his encouragement during a difficult revision and production schedule. Thanks go also to Jodi McPherson, our sponsoring editor, for her enthusiasm and new ideas. Everyone in production provided excellent support and direction: Laurie Entringer, Heather Burbridge, Christine Vaughan, Keri Johnson, Marc Mattson, and David Barrick in production and manufacturing. Gladys True, who worked with us on many of our editions over the past ten years, started the production process with us on this edition, before she left for her well-deserved but unwelcome-to-authors retirement. Outside of McGraw-Hill we were fortunate to have the invaluable services of Burrston house, who provided developmental direction and reviews; Judy Mason, photo researcher; and Bernard Gilbert, Martha Ghent, and James Minkin, who provided some of the best copyediting, proofreading, and indexing in the business. Thanks also to all the extremely knowledgeable and hard-working professionals at GTS Graphics, who provided all the prepress services.

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Student's Guide

A One-Minute Course on How to Succeed in This Class

Got one minute to read this section? It could mean the difference between getting an A instead of a B, or a B instead of a C. Or even passing instead of failing.

Here Are the Rules

There are only four rules, and they aren't difficult.

Rule 1. You have to attend every class. (But that alone won't get you an A, as some students think.)

Rule 2. You can't put off studying, then cram the night before a test. This may work in high school, but college isn't high school.

Rule 3. You have to read or repeat material more than once. The important thing isn't reading. It's *rereading*.

Rule 4. You have to learn the secrets to using your textbook. It would be nice if all textbooks were organized the same way, but they aren't. Different texts have different features.

Getting the Most Information in the Least Time from This Book

Let's consider how you can best read *Using Information Technology*.



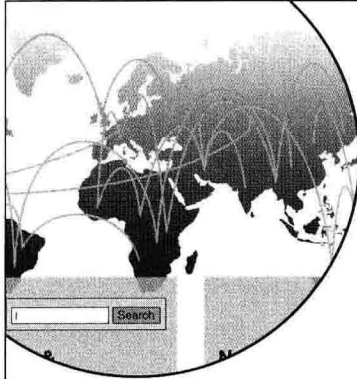
- Get an overview of the chapter first
- Check the key questions in each section before you read it
- Read the section, trying to answer the key question(s)
- Do the Concept Checks
- Read the Visual Summary
- Answer the questions in the Chapter Review

A look through the next seven pages will show you what the features we discussed look like.

Get an Overview of the Chapter First

Before you set out on a trip to a place you've never been to before, you would probably look at a map so you would get a "big picture" view of the route. Reading is the same way.

Scan the first page of the chapter and look at the **Chapter Outline** and the **Key Questions**.



Chapter 2

The Internet & the World Wide Web

Exploring Cyberspace

Chapter Outline

Each chapter begins with an outline of the section headings in the chapter.

Key Questions

You should be able to answer the following questions.

- 2.1 **Choosing Your Internet Access Device & Physical Connection: The Quest for Broadband** What are the means of connecting to the Internet, and how fast are they?
- 2.2 **Choosing Your Internet Service Provider (ISP)** What are the three types of Internet service provider, and what kinds of services do they provide?
- 2.3 **Sending & Receiving E-Mail** How can one obtain e-mail software, what are the components of an e-mail address, and what are netiquette and spam?
- 2.4 **The World Wide Web** What are Web sites, Web pages, browsers, URLs, and search engines?
- 2.5 **The Online Gold Mine: More Internet Resources, Your Personal Cyberspace, E-Commerce, & the E-economy** What are FTP, Telnet, newsgroups, real-time chat, and e-commerce?

Key Questions

Use these Key Questions to help you read with purpose. Key Questions are repeated throughout the text.

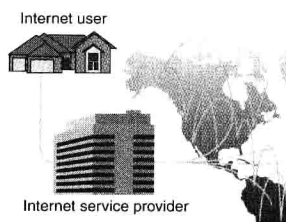
Then turn the page and read through the **Graphical Interface: A Visual Overview**. These will give you a “big picture” of the chapter material.

Graphical Interface: A Visual Overview

Reading experts suggest you “preview” the material you are about to read. You can do this by reading the pages immediately following the chapter opening, which present the chapter’s key terms and concepts. Graphics provide visual reinforcement.

A Visual Overview of This Chapter

Graphical Interface



1 Choosing Your Internet Access Device & Physical Connection. Some Internet **physical connections**, either wired or wireless, have more **bandwidth**—are able to transmit more data—than others. Data transmission is expressed in **bps** (bits per second), **Kbps** (kilobits—thousands of bits per second), **Mbps** (megabits—millions), and **Gbps** (gigabits—billions). Data is **downloaded** from a remote computer to a local computer or **uploaded**, the reverse.

There are four principal types of Internet physical connections: (1) Telephone (dial-up) modem connection is low-speed but inexpensive (up to 56 Kbps). (2) High-speed phone connections are **ISDN** (up to 128 Kbps), which transmits over traditional phone lines; **DSL** (up to 8.4 Mbps), also using traditional phone lines; and **T1** (1.5 Kbps), a special trunk line. (3) **Cable modems** (10 Mbps) connect to cable TV systems. (4) Wireless systems include microwave systems, such as **communications satellites** or space stations (up to 56 Kbps).

2 Choosing Your Internet Service Provider (ISP). With a physical connection installed, you then need an **Internet service provider (ISP)**, a company to help you connect or **log on** to the Internet. Three types of ISPs are free-service providers, which make money presenting ads; basic-service providers, or small, local companies; and full-service providers, which offer more technical support and other services—examples are AOL and MSN—and which offer **menus**, or lists of commands or services.

3 Sending & Receiving E-Mail. Four alternatives for getting and sending e-mail are to buy e-mail software, get the software as part of a browser or other software, get it from your ISP, and get it free (for example, from CNN.com or NetZero). People will send e-mail to you at your **domain**, a location on the Internet consisting of your user name and domain name, such as **user@domain**.

E-mail allows users to send attachments, or separate long documents, with their e-mail messages. It also allows **instant messaging (IM)**, which advises other users the moment a message arrives by displaying it in a **window**, a rectangular area on screen. You can exchange e-mail from people worldwide with similar interests through **list-serves**, or e-mail mailing lists.

The two basic rules of online behavior, or **netiquette**, are don't waste people's time and don't say anything online you wouldn't say to someone's face. In particular, you should always first consult **FAQs**, or Frequently Asked Questions; avoid **flaming**, such as insults or obscenities; and smooth communication using **emoticons**, or friendly graphic symbols.

To manage your e-mail, filters or instant organizers are recommended. In addition, one needs to know how to manage **spam**, or unsolicited e-mail. Finally, assume e-mail messages are not private: anyone could read them.



Key Terms

Important terms are presented in bold type.

Check the Key Questions in Each Section before You Read It

Look at the **Key Question** near the section heading. Read this aloud (or beneath your breath) or write it down.

Bookmark This! Practical Action Box

These boxes present material on practical matters that students find useful.

BOOKMARK IT!

PRACTICAL ACTION BOX

Choosing an Internet Service Provider



If you belong to a college or company, you may get an ISP free. Some public libraries also offer free Net connections. Here are some important questions to ask when you're making those phone calls to locate an Internet service provider.^a

Costs

- Is there a setup fee? (Most ISPs no longer charge this, though some "free" ISPs will.)
- How much is unlimited access per month? (Most charge about \$20 for unlimited usage. But inquire if there are free or low-cost trial memberships or discounts for long-term commitments.)
- If access is supposedly free, what are the trade-offs besides putting up with heavy advertising? (For instance, if the ISP closely monitors your activity in order to accurately target ads, what guarantees do you have that information about you will be kept private? What charges will you face if you try to scrap the advertising window or drop the service?)
- Is there a contract, and for what length of time? That is, are you obligated to stick with the ISP for a while even if you're unhappy with it?

Access

- Is the access number a local phone call? (If not, your monthly long-distance phone tolls could exceed the ISP

- Is access available when you're traveling? Your provider should offer either a wide range of local access numbers in the cities you tend to visit or toll-free 800 numbers.

Support

- What kind of help does the ISP give in setting up your connection?
- Is there free, 24-hour technical support? Is it reachable through a toll-free number?
- How difficult is it to reach tech support? (Try calling the number before you sign up for the ISP and see how long it takes to get a response. Many ISPs keep customers on hold for a long time.)

Reliability

- What is the average connection success rate for users trying to connect on the first try? (The industry average call-success rate is 93.1%. You can try dialing the number during peak hours, to see if you get a modem screech, which is good, rather than a busy signal, which is bad. You can also check Visual Networks, www.inversenet.com, for call-failure/call-success rates of various ISPs.)
- Will the ISP keep up with technology? (Are they planning to offer broadband technology such as DSL for speedier access?)
- Will the ISP sell your name to marketers or bombard you with junk messages (spam)?

Key Questions

Use these Key Questions presented at the start of each section to help you read with purpose.

...up number if the main num-

CONCEPT CHECK

What are the measures of data transmission speed?

Explain the differences among the methods of going online.

Describe the different types of Internet service providers.

2.3 Sending & Receiving E-Mail

KEY QUESTIONS

How can one obtain e-mail software, what are the components of an e-mail address, and what are netiquette and spam?

Once connected with an ISP, one of the first things most people want to do is join the millions of users who send and receive electronic mail. E-mail can be sent at any time and to several people simultaneously. You can receive e-mail wherever you are, using your user name and password to connect to the Internet. In addition, you can attach long (or short) documents or other materials to your e-mail message.

Concept Checks

These questions, which appear throughout the text, encourage you to take a moment to see how well you understand the concepts you have read in the preceding material.

Read the Section, Trying to Answer the Key Question(s)

Read the section, trying to answer the Key Question or Key Questions as you go. Make marks in the book if this helps you answer the question. In particular, look at the **key terms and definitions**, which appear in bold-face. Look at the **graphics** (artwork and photos), which help to clarify the discussion.

Key Terms and Definitions

Throughout the text, key terms and definitions are easily identified by distinctive type.

computer display screen. Through this frame you can view a file of data—such as a document, spreadsheet, or database—or an application program.

In the right-hand corner of the Windows 98 toolbar are three icons that represent *Minimize*, *Maximize*, and *Close*. By clicking on these icons, you can *minimize* the window (shrink it down to an icon at the bottom of the screen), *maximize* it (enlarge it), or *close* it (exit the file and make the window disappear).

You can also *move* the window around the desktop, using the mouse.

Finally, you can create *multiple windows* to show operations going on concurrently. For example, one window might show the text of a paper you're working on, another might show the reference section for the paper, and a third might show something you're downloading from the Internet.

- The Help command: Don't understand how to do something? Forgotten a command? Accidentally pressed some keys that messed up your screen layout and you want to undo it? Most toolbars contain a **Help command**, which leads to a table of contents, an index, and a search feature that can help you locate answers. In addition, many applications have context-sensitive help, which leads you to information about the task you're performing. (See ● Panel 3.7.)

● PANEL 3.7
Help features
The Help command yields a pull-down menu.

The Help menu provides a list of help options.

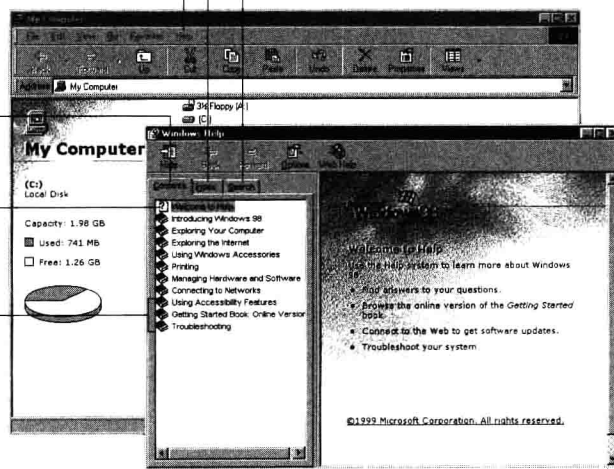
Index: Lets you look up Help topics in alphabetical order

Search: Lets you hunt for Help topics that contain particular words or phrases

Contents: Lets you look at lists of Help topics presented in a table of contents format

Question mark icon: Double-click to see Help screens.

Book icons: Double-click to display lists of topics or additional books.



This window displays the selected Help topic.

Graphics

Many concepts and procedures are best explained through the use of artwork and photographs.

Do the Concept Checks

The **Concept Checks** are questions that appear throughout the text that encourage you to see how well you understand the concepts you have read. Take a break from your reading and try to answer as many of these as possible. If you have trouble with the questions, you probably should go back and review the section before proceeding.