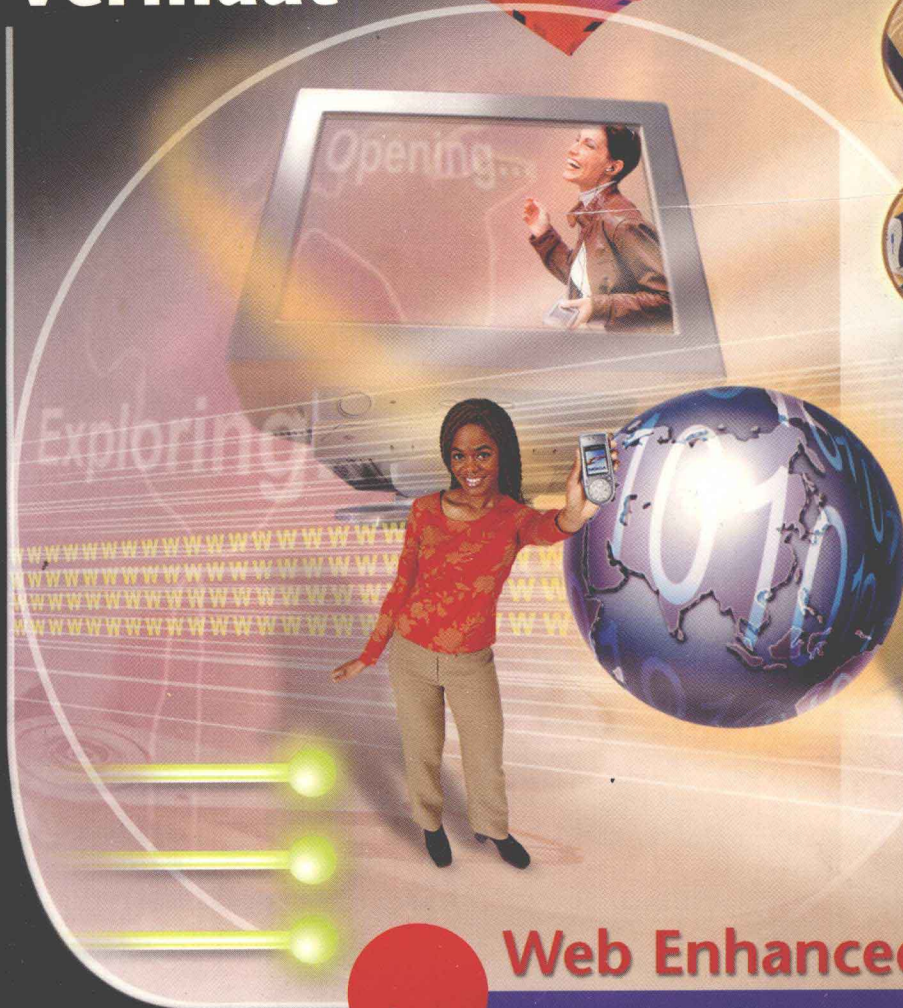


# Discovering Computers 2004

A Gateway to Information

Shelly  
Cashman  
Vermaat



Web Enhanced



# Discovering Computers 2004

A Gateway to Information  
**Web Enhanced**

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**Discovering Computers 2004**  
**A Gateway to Information**  
**Web Enhanced**

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# Preface

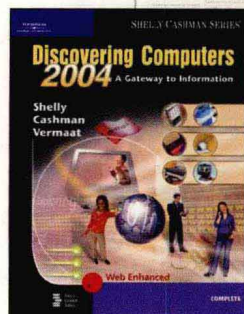
The Shelly Cashman Series® offers the finest textbooks in computer education. We are proud of the fact that the previous eight editions of this textbook have been runaway best-sellers. As with previous editions, *Discovering Computers 2004: A Gateway to Information, Web Enhanced* is intended for use as a stand-alone textbook or in combination with an applications, Internet, or programming textbook in a one-quarter or one-semester introductory computer course. No experience with computers is assumed. The material presented provides an in-depth treatment of introductory computer subjects. Students will finish the course with a solid understanding of computers, how to use computers, and how to access information on the World Wide Web. The objectives of this book are as follows:

- Teach the fundamentals of computers and computer nomenclature, particularly with respect to personal computer hardware and software, the World Wide Web, and enterprise computing
- Present the most-up-to-date technology in an ever-changing discipline
- Give students an in-depth understanding of why computers are essential components in business and society
- Present the material in a visually appealing and exciting manner that motivates students to learn
- Offer distance-education providers a textbook with a meaningful and exercise-rich companion Web site.
- Provide exercises and lab assignments that allow students to interact with a computer and learn by actually using the computer and the World Wide Web
- Offer alternative learning techniques and reinforcement via the Web
- Present strategies for purchasing, installing, and maintaining a desktop computer, a notebook computer, a Tablet PC, and a PDA
- Assist students in planning a career and getting certified in the computer field

## WHAT'S NEW IN THIS EDITION

Each of the previous eight editions of this book included learning innovations such as integration of the World Wide Web, WebCT, Blackboard, Interactive Labs, online learning games, MyCourse.com, and Teaching Tools that set it apart from its competitors. *Discovering Computers 2004: A Gateway to Information, Web Enhanced* continues with the innovation, quality, timeliness, and reliability that you have come to expect from the Shelly Cashman Series. This latest edition of *Discovering Computers* includes these enhancements:

- Companion Web site redesigned and enhanced to provide much more reinforcement and unparalleled currency.
- New chapter titled Enterprise Computing helps students understand the unique characteristics of computing in a large corporation.
- Two new special features titled PDA Application Software and Digital Imaging and Video Technology present cutting-edge technologies.
- New two-column, easy-to-read flow of text and figures.





# Discovering Computers

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- New set of end-of-chapter exercises titled Web Research includes a dozen exercises to help students improve their oral and written communication skills.
- New 32-page appendix titled Making Use of the Web introduces students to the major Web applications, such as finance, travel, arts, education, auctions, entertainment, and much more.
- New appendix titled Computer Acronyms provides students with a quick reference with page numbers for the hundreds of computer-related acronyms included throughout the book.
- New two-page chapter openers include a Picture Yourself article, a list of the chapter objectives, and the chapter table of contents to set the mood and help students focus on the chapter content.
- Three Quiz Yourself boxes placed throughout each chapter refer students to the companion Web site to take a short quiz, which helps ensure they know the material just read and are ready to move on in the chapter.
- Buyer's Guide 2004 completely updated and expanded to include Tablet PCs and PDAs.
- Expanded pencil-and-paper and small-group exercises.
- Latest hardware, technology, and trends, including enterprise computing, smart display, digital imaging and video technology, Tablet PC, and much more.
- All figures replaced with updated screens, art, and photographs.
- Nearly 200 new computer terms and their definitions added to this latest edition.
- High-Tech Talk articles at the end of each chapter offer a more technical discussion of information related to a topic presented in the chapter.
- Looking Ahead boxes give students a glimpse at the latest advances in computer technology that will be available within the next five to ten years.
- Issue boxes updated to include the latest controversial topics in the computer field.
- Additional step figures present the more complex computer concepts using a step-by-step pedagogy.
- FAQ boxes offer common questions and answers about subjects related to the topic at hand.
- All questions in the 3,500-question test bank are new and identified by objective and, if term based, whether it is a primary or secondary term.
- New and improved one-click-per-slide PowerPoint presentation lecture tool for each chapter.

## DISTINGUISHING FEATURES

The Complete edition of *Discovering Computers 2004: A Gateway to Information, Web Enhanced* includes the following distinguishing features.

### A Proven Book

More than 5.5 million students have learned about computers using Shelly and Cashman computer fundamentals textbooks. With the additional World Wide Web integration and interactivity, streaming up-to-date audio and video, extraordinary step-by-step visual drawings and photographs, unprecedented currency, and the Shelly and Cashman touch, this book will make your computer concepts course exciting and dynamic.



## World Wide Web Enhanced

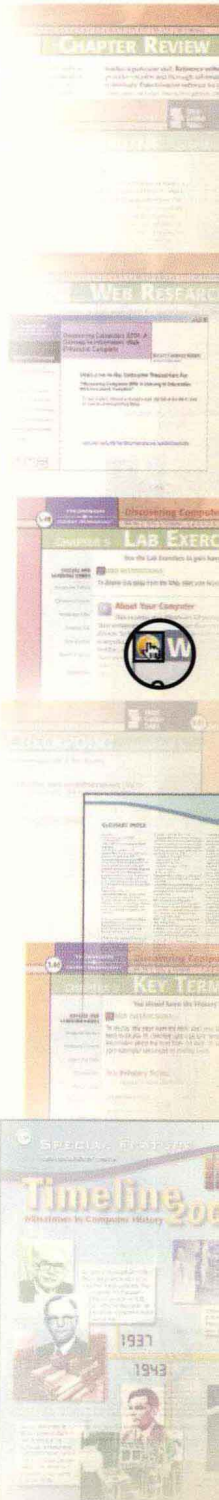
This book uses the World Wide Web as a major supplement. The purpose of integrating the World Wide Web into the book is to (1) offer students additional information and currency on important topics; (2) use its interactive capabilities to offer creative reinforcement and online quizzes; (3) make available alternative learning techniques with Web-based learning games, practice tests, and interactive labs; (4) underscore the relevance of the World Wide Web as a basic information tool that can be used in all facets of society; (5) introduce students to doing research on the Web; and (6) offer instructors the opportunity to organize and administer their traditional campus-based or distance-education-based courses on the Web using WebCT, Blackboard, or My Course 2.0.

This textbook, however, does not depend on Web access to be used successfully. The Web access adds to the already complete treatment of topics within the book. The World Wide Web is integrated into the book in the following ways:

- Streaming audio that speaks the end-of-chapter Chapter Review sections to students.
- End-of-chapter pages, glossary index, and three of the special features in the book are stored as Web pages on the World Wide Web.
- Web-based quizzes are interspersed throughout the chapters; each chapter includes a chapter-ending Web-based practice test, which randomly selects questions from a pool, so students can take a chapter practice test as often as they want.
- All Issue boxes, Apply It boxes, Looking Ahead boxes, FAQ boxes, Career Corner boxes, High-Tech Talk articles, Technology Trailblazers articles, and Companies on the Cutting Edge articles include suggested Web sites that contain information beyond that presented.
- Streaming computer-related videos on the Web are in the end-of-chapter Learn It Online section.
- Throughout the text, marginal annotations titled Web Links provide suggestions on how to obtain additional information via the Web about an important topic covered on the page.
- Eighteen Interactive Labs on the Web in the end-of-chapter Learn It Online sections help students gain a better understanding of a specific subject.
- WebCT and Blackboard offer Web-based course management systems for use in a traditional classroom setting or in a distance education environment.
- MyCourse 2.0 offers instructors and students an opportunity to supplement classroom learning with additional content on the Web.

## A Visually Appealing Book that Maintains Student Interest

The latest technology, pictures, drawings, and text are combined artfully to produce a visually appealing and easy-to-understand book. Many of the figures show a step-by-step pedagogy, which simplifies the more complex computer concepts. Pictures and drawings reflect the latest trends in computer technology. Finally, the text is set in two columns, which instructors and reviewers say their students prefer. This combination of pictures, step-by-step drawings, and easy-to-read text layout sets a new standard for computer textbook design.





## High-Tech Talk

Each chapter ends with a page titled High-Tech Talk. Students who are technically inclined will enjoy these articles that expand on information related to a topic presented in the chapter. Topics include IP addresses, How Viruses Work, How Memory Works, Wireless Communications, Sound Cards, Normalization, How Network Communications Work, and much more.

## Companies on the Cutting Edge and Technology Trailblazers

All students graduating from an institution of higher education should be aware of the major companies and leaders in the field of computers. Thus, a two-page spread at the end of each chapter introduces students to two companies on the cutting edge and two technology trailblazers. The Companies on the Cutting Edge articles present the major computer companies, such as Microsoft, Intel, AOL, Sun Microsystems, Oracle, IBM, and others. The Technology Trailblazers articles present people who have made a difference in the field of computing, such as Bill Gates, Gordon Moore, Donna Dubinsky, Linus Torvalds, Carly Fiorina, Tim Berners-Lee, and others.

## Latest Technologies and Terms

The technologies and terms your students see in this book are those they will encounter when they start using computers. This book covers nearly 200 topics and terms new to this edition of the book, such as modular computer, customer relationship management (CRM), enterprise computing, Athlon™ MP, Hyper-Threading (HT) Technology, ovonic memory chips, Internet wearables, holographic storage, Windows XP Tablet PC Edition, Palladium, wireless access point, m-Cash, and much more.

## End-of-Chapter Exercises

The Shelly Cashman Series authors and team dedicate as many resources to create the end-of-chapter material as we do to develop the chapter content. We believe strongly in offering exciting, rich, and thorough end-of-chapter material to reinforce the chapter objectives and assist you in making your course the finest ever offered. As indicated earlier, each of the end-of-chapter pages is stored as a Web page on the World Wide Web to provide your students in-depth information and alternative methods of preparing for examinations. Each chapter ends with the following:

- Chapter Review** This section summarizes the chapter material in the form of questions and answers. Each question addresses a specific chapter objective, making this section invaluable in reviewing and preparing for examinations. Quiz Yourself boxes offer students the opportunity to take Web-based quizzes as they step through the Chapter Review. Links on the Web page provide additional current information. With a single-click on the Web page, the Chapter Review section is spoken to students using streaming audio.
- Key Terms** This list of the key terms found in the chapter together with the page numbers on which the terms are defined will aid students in mastering the chapter material. The key terms in this book are divided into two categories — Primary and Secondary. The Primary Terms are terms students should know after reading the chapter. They are shown in bold black characters in the book and on the Key Terms page. The Secondary Terms are terms students should be familiar with after reading the chapter. They are shown in italics in the book and on the Key Terms page. A complete summary of all key terms in the book, together with their definitions, appears in the





Glossary Index at the end of the book. All computer acronyms with their meanings are listed in Appendix C. On the corresponding Key Terms Web page, students can click any term to view a definition and a picture and then click a link to visit a Web page that offers additional information.

- **Checkpoint** These pencil-and-paper exercises are presented on three pages. Exercises include Label the Figure, True/False, Multiple Choice, Matching, Short Answer, and Working Together (small-group exercises). Students accessing the Checkpoint Web page can answer the questions in an interactive forum.
- **Learn It Online** These Web-based exercises include exciting activities and reinforcement that maintain student interest. Exercises include watching streaming video, a scavenger hunt, search sleuth, Interactive Labs, practice tests, and learning games. Other exercises in this section, such as working with newsgroups and reviewing the latest news in technology, also use the World Wide Web.
- **Lab Exercises** A series of lab assignments using Windows XP/2000/98 procedures begins with the simplest exercises within Windows. Students then are led through additional activities that, by the end of the book, enable them to be proficient using Windows.
- **Web Research** Students need to improve their oral and written communication skills. To this end we have included a dozen Web research projects at the end of each chapter. These exercises require students to do research on the Web and write a short article about their findings or share their findings with the class by means of a formal presentation.

### Ideal Book for Distance Education

Because of the companion Web site, this book is ideal for a distance education environment. Not only do students have access to the book's Web site to view movies, take practice quizzes and tests, use the learning games, complete Web research, and visit the recommended Web sites, but tests can be delivered over the Web using the test generator, ExamView.

### Timeline 2004: Milestones in Computer History

A colorful, highly informative 14-page timeline following Chapter 1 steps students through the major computer technology developments during the past 60 years, including the most recent advances, as well as expectations for 2003.

### Guide to World Wide Web Sites and Searching Techniques

More than 150 popular up-to-date Web sites are listed and described in this guide to Web sites that follows Chapter 2. This guide also introduces students to basic searching techniques.

### PDA Application Software

This special feature following Chapter 5 offers a detailed presentation of PDA operating systems, built-in PDA software, and PDA software related to synchronization, business, communications, corporate/government, medical, scientific, travel, education, multimedia, and entertainment. Also included is a discussion about how to obtain and install PDA software.





## Digital Imaging and Video Technology

This special feature following Chapter 6 introduces students to using a personal computer, digital camera, and video camera to manipulate photographs and video.

## Buyer's Guide 2004: How to Purchase, Install, and Maintain a Personal Computer

The Buyer's Guide following Chapter 8 has been expanded from 15 pages to 23 pages. The guide introduces students to purchasing, installing, and maintaining a desktop computer, notebook computer, Tablet PC, and PDA.

## A World Without Wires

This special feature following Chapter 9 presents a pictorial introduction of the wireless revolution. It describes the growth of wireless technology and presents the latest in hardware and applications.

## E-Commerce 2004: A Revolution in Merchandising

This 8-page special feature following Chapter 10 describes e-commerce basics, e-commerce business models, e-commerce revenue streams, and how to become an e-commerce merchant.

## Trends 2004: A Look to the Future

Following Chapter 15, a special feature examines several long-term trends that will influence the direction of the computer field. Shorter-term trends in the computer field can be found in the Looking Ahead boxes interspersed throughout the book.

## Shelly Cashman Series Interactive Labs

A total of 18 Interactive Labs, each of which takes 10 to 15 minutes to step through, help students gain a better understanding of subjects covered in the chapters.

## SHELLY CASHMAN SERIES INSTRUCTOR RESOURCES

Four ancillaries accompany this textbook: (1) Instructor Resources (ISBN 0-7895-6706-7); (2) Course Presenter (ISBN 0-7895-6707-5); (3) My Course 2.0; and (4) Blackboard and WebCT Online Content. These ancillaries are available to adopters through your Course Technology representative or by calling one of the following telephone numbers: Colleges and Universities, 1-800-648-7450; High Schools, 1-800-824-5179; Private Career Colleges, 1-800-347-7707; Canada, 1-800-268-2222; Corporations with IT Training Centers, 1-800-648-7450; and Government Agencies, Health-Care Organizations, and Correctional Facilities, 1-800-477-3692.

## Instructor Resources

The Instructor Resources for this textbook include both teaching and testing aids. The contents of the Instructor Resources CD-ROM are listed below.

- Instructor's Manual** The Instructor's Manual is made up of Microsoft Word files. The Instructor's Manual includes detailed lesson plans with page number references, lecture notes, teaching tips, classroom activities, discussion topics, projects to assign, and transparency references. The transparencies are available through the Figure Files described on the next page.



- **Syllabus** Any instructor who has been assigned a course at the last minute knows how difficult it is to come up with a course syllabus. For this reason, sample syllabi are included that can be customized easily to a course.
- **Figure Files** Illustrations for every figure in the textbook are available in electronic form. Use this ancillary to present a slide show in lecture or to print transparencies for use in lecture with an overhead projector. If you have a personal computer and LCD device, this ancillary can be an effective tool for presenting lectures.
- **Solutions to Exercises** Solutions are included for the end-of-chapter exercises.
- **Test Bank & Test Engine** The test bank includes 220 questions for every chapter (50 multiple-choice, 100 true/false, and 70 fill-in-the-blank) with page number references, and when appropriate, figure references. Each question also is identified by objective and type of term (primary or secondary). A version of the test bank you can print also is included. The test bank comes with a copy of the test engine, ExamView. ExamView is a state-of-the-art test builder that is easy to use. ExamView enables you quickly to create printed tests, Internet tests, and computer (LAN-based) tests. You can enter your own test questions or use the test bank that accompanies ExamView.
- **Pretest/Posttest** Use these carefully prepared tests at the beginning and the end of the semester to measure student progress. A master student answer sheet is included. See the Test Bank & Test Engine menu item on the Instructor Resources CD-ROM.
- **Test Out/Final Exam** Use this objective-based test to test students out of your course, or use it as a final examination. The recommended passing score is 75 percent. A master student answer sheet is included. See the Test Bank & Test Engine menu item on the Instructor Resources CD-ROM.
- **Data Files for Students** All the files that are required by students to complete the exercises are included. You can distribute the files on the Instructor Resources CD-ROM to your students over a network, or you can have them follow the instructions on the inside back cover of this book to obtain a copy of the Discovering Computers 2004 Data Disk.
- **Study Guide Sampler** The *Study Guide Sampler* consists of Word documents of the preface and first three chapters of the *Study Guide for Discovering Computers 2004* that is described in the Supplements section on the next page. See the Instructor's Manual menu item on the Instructor Resources CD-ROM.
- **Interactive Labs** These are the nonaudio versions of the 18 hands-on Interactive Labs exercises. Students can step through each Lab in about 15 minutes to solidify and reinforce computer concepts. Assessment requires students to answer questions about the contents of the Interactive Labs. See the Software menu item on the Instructor Resources CD-ROM.

## Course Presenter with Figures, Animations, and CNN Video Clips

Course Presenter is a one-click-per-slide presentation system on CD-ROM that provides PowerPoint slides for every subject in each chapter. Use this presentation system to give interesting, well-organized, and knowledge-based lectures. More than 30 two- to three-minute, up-to-date CNN computer-related video clips are available for optional presentation. Course Presenter provides consistent coverage for multiple lecturers.





### MyCourse 2.0 - Course Management Made Easy

MyCourse 2.0 is a flexible, easy-to-use course management tool that gives you true customization over the online components of your course. MyCourse 2.0 allows you to personalize your course home page, schedule your course activities and assignments, post messages, administer tests, and file the results in a grade book. You also can use text-specific preloaded content for this book, add your own content, select from a pool of test bank questions, or create questions yourself. MyCourse 2.0 is hosted by Thomson Learning, allowing you hassle-free maintenance and student access at all times. For more information, visit [course.com/onlinecontent](http://course.com/onlinecontent).

### Blackboard and WebCT Online Content

Course Technology offers you options for online content. For those who want online testing, we provide a Blackboard test bank and a WebCT test bank, available for download in the Instructor Resources section on [course.com](http://course.com). For those who desire more content, we offer course management and access to a Web site that is fully populated with content for this book. Also see Blackboard and WebCT Online Content in the Supplements section. For more information, visit [course.com/onlinecontent](http://course.com/onlinecontent).

## SUPPLEMENTS

Three supplements can be used in combination with *Discovering Computers 2004: A Gateway to Information, Web Enhanced*.

### Shelly Cashman Series Interactive Labs with Audio on CD-ROM

The Shelly Cashman Series Interactive Labs with Audio on CD-ROM (ISBN 0-619-20001-4) may be used in combination with this textbook to augment your students' learning process. See page xxiv for a description of each Lab. These Interactive Labs also are available at no cost on the Web by clicking the appropriate button on the Learn It Online exercise pages (see page 1.46) and as a nonaudio version on the Instructor Resources CD-ROM. A companion student guide for the Interactive Labs, titled *A Record of Discovery for Exploring Computers, Fourth Edition* (ISBN 0-7895-6372-X), enhances the Interactive Labs presentation, reinforces concepts, shows relationships, and provides additional facts.

### Study Guide

This highly popular *Study Guide* (ISBN 0-7895-6705-9) includes a variety of activities that help students recall, review, and master introductory computer concepts. The *Study Guide* complements the end-of-chapter material with a guided chapter outline; a self-test consisting of true/false, multiple-choice, short answer, fill-in, and matching questions; an entertaining puzzle; and other challenging exercises. See the *Study Guide Sampler* through the Instructor's Manual menu item on the Instructor Resources CD-ROM.





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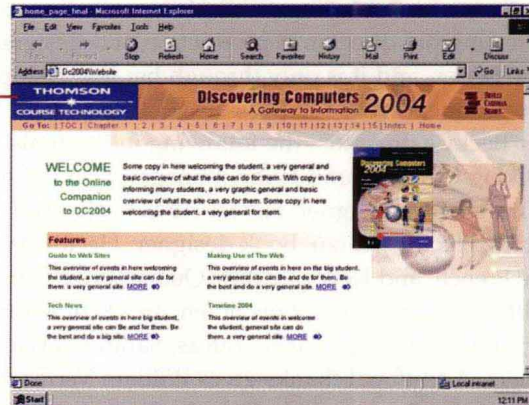
# To the Student

## Getting the Most Out of Your Book

Welcome to *Discovering Computers 2004: A Gateway to Information, Web Enhanced*. You can save yourself a lot of time and gain a better understanding of the computer concepts presented in this book if you spend a few minutes reviewing this section.

### 1 Companion Web Site

Use the companion Web site at [scsite.com/dc2004](http://scsite.com/dc2004), which includes additional information about important topics and provides unparalleled currency; and make use of online learning games, practice tests, and additional reinforcement.



### 2 Picture Yourself

Picture yourself using the concepts presented in the chapter you are about to read. This section at the beginning of each chapter is intended to help you see how the specific material might apply to your everyday life using computers.



### 3 Chapter Objectives and Table of Contents

Before you read the chapter, carefully step through the Objectives and Contents so that you know what you should learn from the chapter.

### 4 Initial Chapter Figure

Carefully study the first figure in each chapter because it will give you an easy-to-follow overview of the major purpose of the chapter.





## 5 Web Link

Obtain current information and a different perspective about key terms and concepts by visiting the Web addresses in the Web Links found in the margins throughout the book.

## 6 Step Figures

Each chapter includes numerous step figures that present the more complex computer concepts using a step-by-step pedagogy.

## 7 Apply It

The Apply It boxes illustrate how the material presented in the chapter can be applied to everyday life.

## 8 Issue

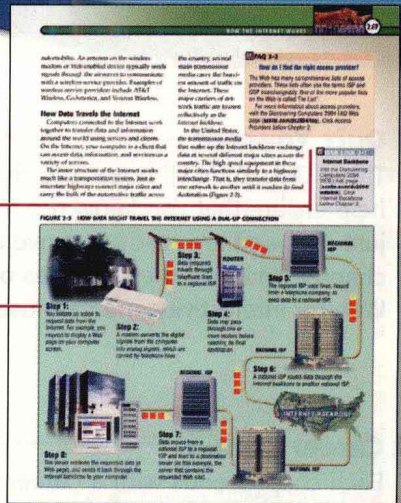
Issue boxes provide you with computer-related controversial topics of the day and stimulating questions that offer insight into the general concerns of computers in society.

## 9 Looking Ahead

The Looking Ahead boxes offer you a glimpse at the latest advances in computer technology that will be available, usually within five years.

## 10 FAQ

FAQ (frequently asked questions) boxes offer common questions and answers about subjects related to the topic at hand.





# Discovering Computers

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### 11 Quiz Yourself

Three Quiz Yourself boxes per chapter help ensure that you know the material you just read and are ready to move on in the chapter. You take these quizzes on the Web for interactivity and easy use.

### 12 Career Corner

Each chapter ends with a Career Corner feature that introduces you to a computer-career opportunity relating to a topic covered in the chapter.

### 13 High-Tech Talk

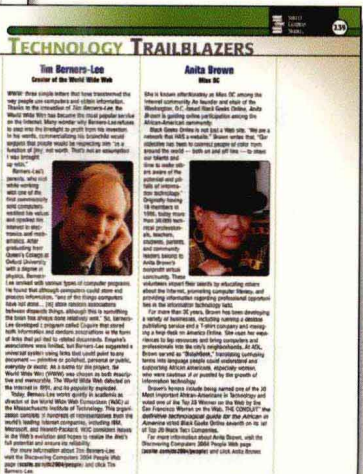
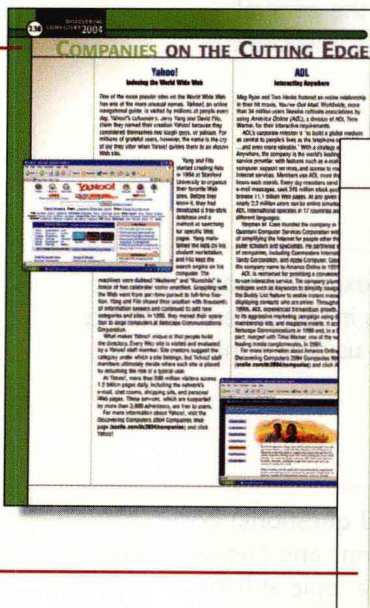
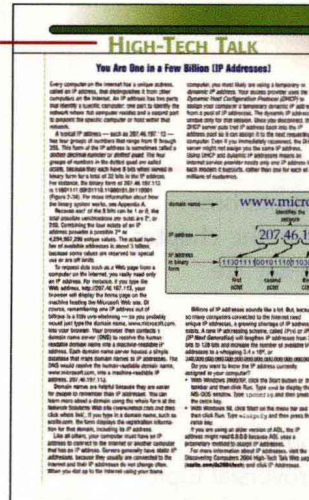
If you are technically inclined, you will enjoy the High-Tech Talk article at the end of each chapter. These presentations expand on a topic covered in the chapter and present a more technical discussion.

### 14 Companies on the Cutting Edge

Each chapter includes a profile about two key computer-related companies of which you should be aware, especially if you plan to major in the computer field.

### 15 Technology Trailblazers

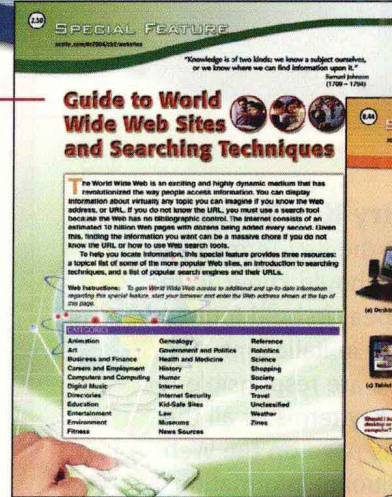
The Technology Trailblazers page in each chapter offers a glimpse into the life and times of the more famous leaders of the computer industry.





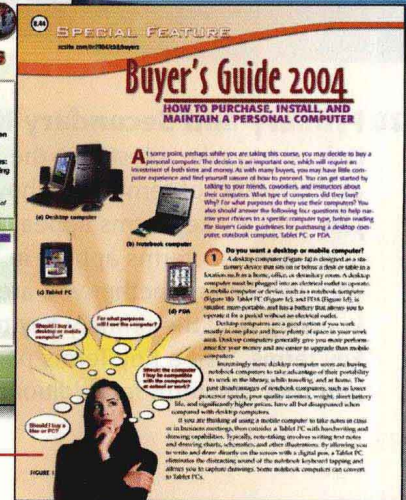
## 16 Guide to World Wide Web Sites and Searching Techniques

To ensure your skills using the World Wide Web are up to date, this special feature following Chapter 2 provides three resources: (1) a list of useful Web sites, (2) an introduction to searching techniques, and (3) a guide to popular search engines.



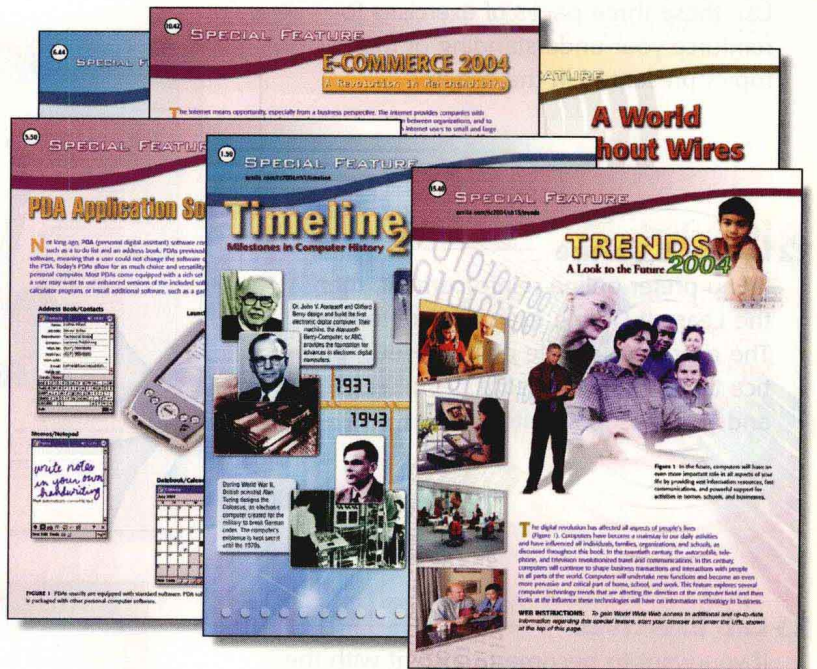
## 17 Buyer's Guide 2004

Do not buy a computer without reading the highly regarded Buyer's Guide that follows Chapter 8. This unique feature introduces you to purchasing, installing, and maintaining a desktop computer, notebook computer, Tablet PC, and PDA.



## 18 Other Special Features

Several additional special features follow chapters that will add value to your learning experience: Timeline 2004 (Chapter 1); PDA Application Software (Chapter 5); Digital Imaging and Video Technology (Chapter 6); A World Without Wires (Chapter 9); E-Commerce 2004 (Chapter 10); and Trends 2004 (Chapter 15).



## 19 Chapter Review

Use the two-page Chapter Review before you take an examination to ensure that you are familiar with the computer concepts presented. This section includes each objective, followed by a one- or two-paragraph summary. Visit a Chapter Review page on the Web, and click the Audio button to listen to the Chapter Review.

