COMPUTERS IN YOUR FUTURE 3

marilyn meyer • roberta baber • bryan pfaffenberger

COMPUTERS IN YOUR FUTURE 3

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藏书章

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QUE E&T

www.ciyf3.com

Computers in Your Future, Third Edition

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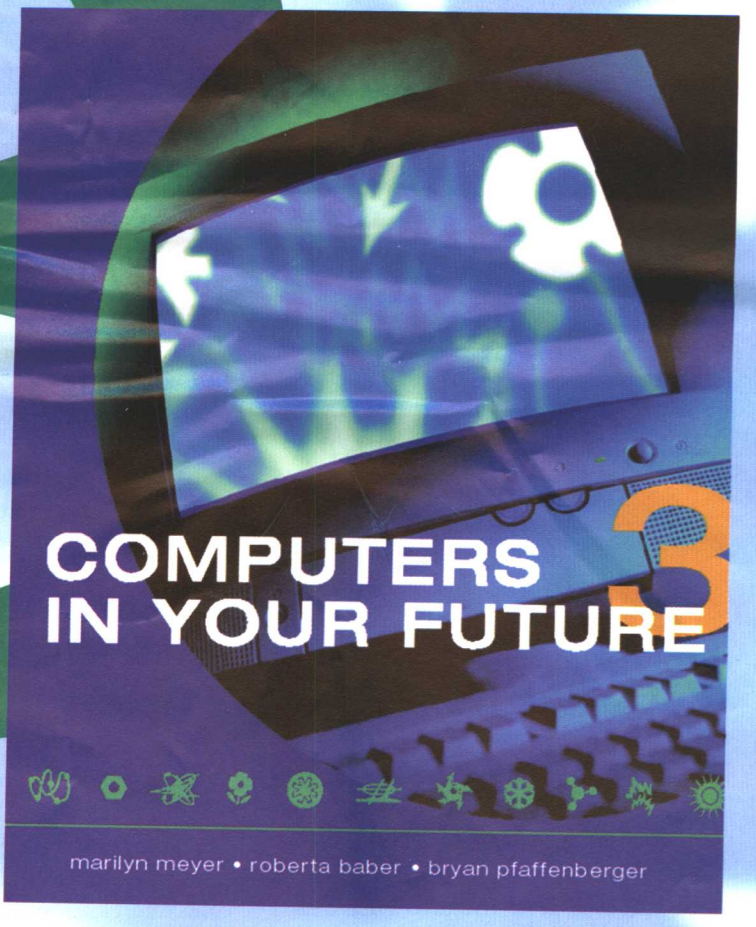


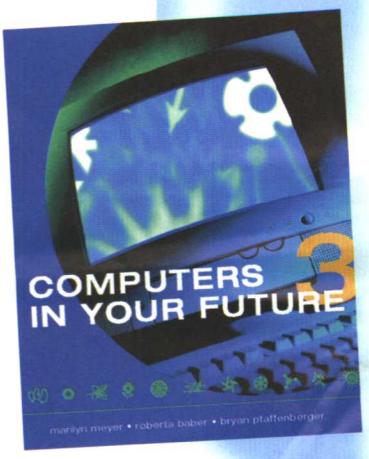
LAY THE FOUNDATION FOR TOMORROW'S SUCCESS

with **Computers in Your Future,** Third Edition, by Meyer, Baber, and Pfaffenberger

Computers are playing a bigger role in our world...

in our homes, our schools, our businesses, and essentially every facet of our lives. That's why it's critical for today's students to understand how computers affect their personal and professional lives, to become computer and information literate, and to recognize how computers will influence their success today, and in the future.

Meyer, Baber, and Pfaffenberger understand the importance of building a knowledge base for your students. From page one of *Computers in Your Future (CIYF),* Third Edition, the authors lay the groundwork for student understanding—from coverage of today's hottest computer topics to the use of engaging pedagogical tools to motivate student learning—all reinforced and enhanced by an extensive resource package designed to offer interactivity and foster the teaching and learning process.



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Walk through the various elements of *Computers in Your Future*, Third Edition, illustrated in this preface. Examine its new and enhanced features, explore the appealing new design, and investigate the many offerings in the exciting, value-driven resource package.

We're sure you'll agree that *CIYF*, Third Edition provides a solid knowledge base for your students and lays the groundwork for their success as students, professionals, and members of our ever-changing technological society.

An Author Team Assembled to Create the Best Book Yet!

The Third Edition of *Computers in Your Future* features a new coauthor, Bryan Pfaffenberger of the University of Virginia. A well-known author of many best-selling computer books, Bryan brings a clear writing style, strong knowledge of the classroom, and fresh perspective to *CIYF*, Third Edition. The combined teaching and real-world experience of the successful authoring trio of Meyer, Baber, & Pfaffenberger translates to a text that's well conceived, clearly written, and thoughtfully executed from cover to cover.

Marilyn Wertheimer Meyer

FRESNO CITY COLLEGE

Marilyn is a Professor and Department Chair of Information Systems & Decision Sciences at Fresno City College. She holds a Bachelor of Science degree in quantitative analysis and a Masters of Science degree in applied computer systems from California State University Fresno. She was a computer programmer/analyst for several years and has extensive teaching experience. She has written a number of lab manuals and computer programming textbooks.

Roberta L. Baber

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Roberta has been a computer professional and college instructor for 17 years. She is Professor of Information Systems at Fresno City College and is active in faculty governance at the college and state level. She has an Associate of Arts degree from East Lost Angeles College, a Bachelor of Science in mathematics from California State University Los Angeles, and a Masters in business administration from California State University Northridge.

Bryan Pfaffenberger

UNIVERSITY OF VIRGINIA

An Associate Professor in the School of Engineering and Applied Science at the University of Virginia, Bryan is the author of more than 100 books on computing. His recent, critically acclaimed best-sellers include *Webster's New World Dictionary of Computer Terms*, *Discover the Internet*, and *Web Publishing with XML*. A sought-after commentator on fast-breaking technology news, Bryan is frequently quoted in leading national media, including NPR's Marketplace, MSNBC, the *Christian Science Monitor*, and *USA Today*.

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Thorough and Current Coverage Creates a Solid Foundation

The third edition of *Computers in Your Future* is better than ever! While continuing to offer a clear presentation of computer concepts, it also seamlessly integrates today's hottest topics and technologies throughout the text.

Emphasis on Information Literacy

CIYF, Third Edition, is the first computer concepts book to seriously consider the challenge of information literacy. Although computer literacy is still a component of the third edition, the authors now teach students how to gather information, evaluate its quality, and make an informed and reliable decision. These information literacy skills are critical in today's world of ubiquitous information access.

Expanded Internet and WWW Coverage

The Internet has dramatically influenced computing and communication in recent years. Meyer, Baber, & Pfaffenberger recognize the need for a text to address this popular and dynamic tool, and that's why they've consistently integrated the Internet and Web into the third edition. This coverage provides students with a text that parallels what they see on their desktop—a system that incorporates Internet usage (including email) as part of the application suite they use every day.

Modular, Customizable Design

CIYF, Third Edition, contains 12 chapters, each of which consists of a series of independent modules. This structure provides instructors with the flexibility to assign preferred topics within each chapter.

Plus, Que Education & Training offers **Quest Custom Publishing**. This program allows you to easily customize the text at the chapter level, which means even greater flexibility and the opportunity to meet your specific classroom needs! For more information on Quest Custom Publishing, contact your Macmillan Publishing Representative.

Real-World Applications

Current, high-interest stories included in each module highlight real-world applications of the material. Check out these intriguing stories: Little Computer on the Prairie (Module 1A), Navajo Nations (Module 6B), The Modern Road Warrior (Module 4E), Code Talkers (Module 10C), and Internet Mentoring (Module 11B).

For a closer look at the content improvements in *CIYF*, Third Edition, see the Table of Contents on pages 4–5.

Little Computer on The Prairie, Module 1A

Includes features from Windows 98 and Windows CE, the latest operating systems from Microsoft. Also has coverage of Linux, the fastest-growing, UNIX-based operating system.

Offers a close look at email—one of the hottest communication vehicles in today's businesses and homes.

Enables instructors to differentiate specialized software from previously discussed productivity software.

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contents at a glance

Now integrates suites into the discussion of productivity software.

Enables instructors to differentiate specialized software from previously discussed productivity software.

More coverage than other books on the market! Two separate chapters! Thorough coverage of the Internet and World Wide Web exposes students to the most popular application of computers today.

Provides practical information for student use in school or at home.

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Requested by reviewers, this new module shows the vital role information systems play in today's organizations.

Includes hot topics such as privacy, indecency, and patents.

Features discussions on AI, robotics, neural nets, and more—enlightening students on the latest technologies and preparing them for what lies ahead.

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Unique coverage! Looks at how computers affect every aspect of our lives, including air traffic control and the year 2000 problem, maglev technology, constructivism, bioinformatics, telemedicine, and electronic commerce!

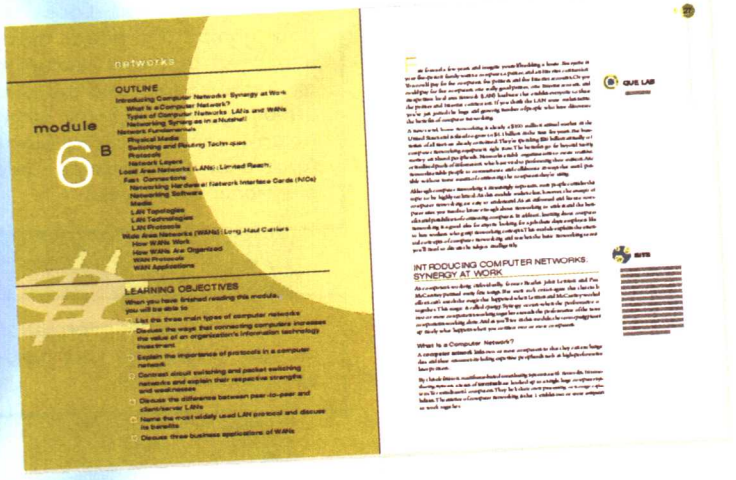
Provides the latest information on how to upgrade your hardware and software.

Offers increased coverage of ergonomics and repetitive stress injuries—the fastest-growing health concern in the United States.

Provides improved and expanded coverage of careers, plus a new section on the importance of certification.

Engaging Pedagogical Tools Designed to Enhance the Learning Process...

Chapter 6 module opener



Chapter Opener

Each chapter opens with an appealing two-page spread, listing the modules and a brief description of how the topics presented in the chapter relate to students and the world of computing today, and in the future.

Module Opener

Each module opens with an outline and a list of Learning Objectives that introduce students to the topics ahead. Plus, QueLab references are featured, enabling students to easily locate the appropriate labs on the Interactive Edition CD-ROM. (For more information on this student learning tool, see the Resources section on pages 9–11.)

Key Terms

Key Terms are printed in boldface within the narrative and defined the first time they appear. A list of Key Terms and Concepts concludes each module—perfect for a quick review of the module's critical topics. All Key Terms and Concepts appear in the glossary at the back of the book.

Margin Notes

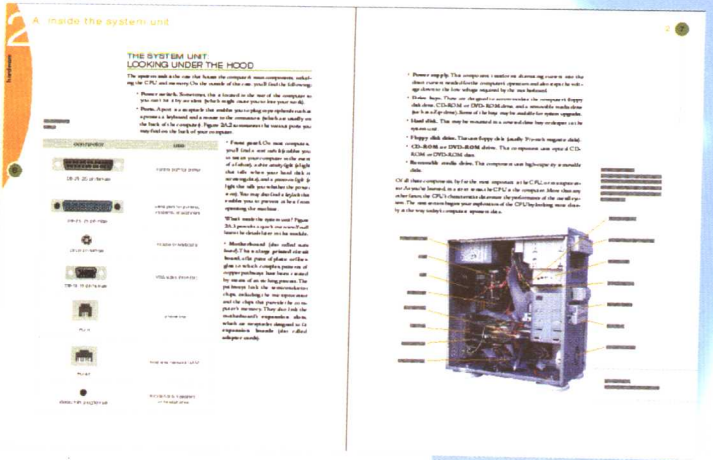
Four types of notes are included in the margin, providing interesting sidebars of information for the reader. Each are easily identified by a unique icon.

QUE LAB *New!* **QueLab Links** indicate concepts that can be explored further in the QueLabs on the *CIYF*, Third Edition, Interactive Edition CD-ROM. Topics include input and output, computer architecture, disk fragmentation, binary numbers, multimedia and virtual reality, word processing, spreadsheets, databases, networking, programming, email, WWW and Internet tools, Web pages and HTML, Web servers, and Year 2000 issues. Each QueLab includes sound, video, interactive review questions, and a hands-on exercise for a complete learning experience.

HOT LINK *New!* **Hot Links** reinforce the text's integration of the Internet and WWW influence. Hot Links encourage students to learn more about topics using current Web resources and including URLs as appropriate.

TECH TALK Tech Talks offer clear, concise definitions of computer jargon.

BITS BITS provide interesting yet brief sidebars to the text.



A variety of illustrations help to reinforce concepts.

Four-Color Photos, Diagrams, and Screen Captures

Important to today's visually oriented students, *CIYF*, Third Edition, includes a variety of photos, illustrations, and screen captures throughout each chapter—reinforcing the textual material at hand.

Summary

Each module ends with a thorough yet concise list of the important concepts, helping students review key points and providing closure to the module material.

End-of-Module Testing and Review Tools

After the Summary, each module features a testing and review section, including True/False, Multiple Choice, Completion, and Review questions. This section enables students to test their abilities in answering important questions related to the module content and prepare for exams.

Think About It

IMPROVED!

Think About It questions facilitate student knowledge of key concepts while testing their intuitive understanding of the material and reinforcing critical-thinking skills.

Look It Up

ENHANCED!

This section offers a series of annotated references—perfect for additional information and exploration.

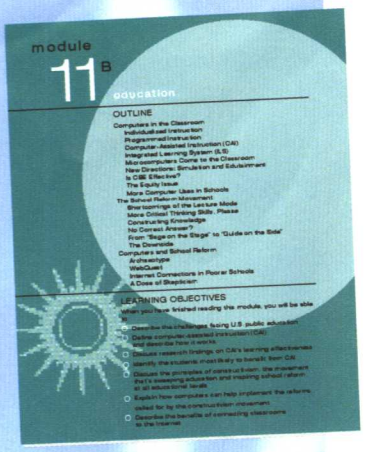
Online Discovery

IMPROVED AND EXPANDED!

This end-of-module feature encourages students to use resources on the Web to conduct more research on a given topic or delve more deeply into the issues associated with the module. Although Online Discovery includes the addresses of several Internet resources and home pages, students can also access these addresses directly from the Que Education & Training home page at http://www.ciyf3.com.

For a closer look at the content improvements in *CIYF*, Third Edition, see the Table of Contents on pages 4–5.

A Comprehensive Resource Package Constructed to Meet the Needs of You and Your Students


module 11 B education

OUTLINE

Computers in the Classroom
Individualized Instruction
Programmed Instruction
Computer-Assisted Instruction (CAI)
Integrated Learning System (ILS)
Microcomputers Come to the Classroom
New Directions: Simulation and Edutainment
Is CBE Effective?
The Equity Issue
More Computer Uses in Schools
The School Reform Movement
Brief Warnings of the Lecture Mode
More Critical Thinking Skills, Please
Constructing Knowledge
No Correct Answer?
From "Sage on the Stage" to "Guide on the Side"
The Downside
Computers and School Reform
Archetype
WebQuest
Internet Connectors in Poorer Schools
A Dose of Skepticism

LEARNING OBJECTIVES

When you have finished reading this module, you will be able to:

1. Describe the challenges facing U.S. public education.
2. Define computer-assisted instruction (CAI) and describe how it works.
3. Discuss research findings on CAI's learning effectiveness.
4. Identify the students most likely to benefit from CAI.
5. Discuss the principles of constructivism, the movement that's sweeping education and inspiring school reform, at all educational levels.
6. Explain how computers can help implement the reforms called for by the constructivism movement.
7. Describe the benefits of connecting classrooms to the Internet.

COMPUTERS IN THE CLASSROOM

Individualized Instruction

"...Information-rich, open-ended software can provide the means to move the classroom focus toward project-focused activities."

MODULE 11 B, EDUCATION. COMPUTERS IN YOUR FUTURE, THIRD EDITION

Que Education & Training and the *CIYF*, Third Edition team couldn't agree more! That's why they've developed one of the most extensive resource packages on the market for both you and your students.

For Instructors and Students...

CIYF, Third Edition, Online Edition and METRO™ Web Delivery System (powered by TopClass™)

NEW!

Que Education & Training is pleased to bring you *CIYF* Online Edition and METRO, which together provide you with one of the most powerful Web-based class management systems and a complete Web-based computer concepts course.

With METRO, instructors are able to communicate with their students, assign supplemental materials, and monitor student progress through quiz results.

Key features of this exciting product include

- The TopClass course delivery system underlying METRO allows instructors tremendous flexibility in charting personalized courses of instruction. Each online course module corresponding to a specific chapter or module contains seven instructional elements: six web-enhanced or web-oriented activities and an assessment exam.
- Web-enhanced teaching tools created specifically for *CIYF* Online Edition. These innovative and engaging tools employ interactive technologies to encourage concept building through self-directed discovery and extensive feedback mechanisms.

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- A *CIYF* Online site hosted by Que E&T, eliminating the cost of purchasing a Web server and providing ongoing maintenance.
- Powerful reporting tools that allow instructors to monitor student and class progress.
- An instructional software engine based on TopClass technology from WBT Systems, Inc. This popular software is already familiar to many instructors.

CIYF, Third Edition, Web site

http://www.ciyf3.com

Que E&T moved beyond usual Web sites to create www.ciyf3.com—an extraordinary and unique teaching and learning Web resource for you and your students. www.ciyf3.com includes a listserve, a chat room, message boards, the TEQNews clipping service, which provides customizable news for your classes, and the Online Discovery Zone.

Que Education & Training Web Site

http://www.queet.com

The Que E&T Web site is your one stop resource for information about Que Education & Training's innovative classroom solutions. Visit our online catalog to explore our applications series: *Essentials, SmartStarts, Learn,* and *MOUS Essentials.* Visit our Certification Resource Center to learn more about A+ Certification and MOUS Certification. Download demos of our computer-based applications teaching and assessment tool: Kelly® PinPoint® 2000—software that teaches and tests mastery of software skills. Find out more about Que E&T at www.queet.com.

For Instructors...

Instructor's Resource Kit (IRK)

NEW!

Convenience at your fingertips! Que E&T now offers a dynamic and flexible collection of resources wrapped up in one easy-to-use teaching system, designed to help you create the perfect class. The **Instructor's Resource Kit** accompanying *Computers in Your Future,* Third Edition, features both print and CD-ROM products, including

- **Instructor's Resource CD-ROM**
- **Annotated Instructor's Edition (AIE)**
- **Instructor's Resource Manual**
- **Test Bank**
- **QueTest™ CD-ROM**
- **QuePresents™ CD-ROM**

For a complete description of the resources included in the IRK, please read on!

Instructor's Resource CD-ROM

This cutting-edge resource offers the same content as the student Interactive Edition, plus chapter-level interactive links to key instructor resources—including the Instructor's Resource Manual, Test Bank, and QuePresents, as well as links to the *CIYF*, Third Edition, Web site (www.ciyf3.com).

Annotated Instructor's Edition (AIE)

This handy resource provides the complete student text with in-text annotations for the instructor. The annotations include information on incorporating QuePresents and the Interactive Edition in classroom presentations, ideas for alternative lecture topics, tips on dealing with common student questions, and other useful information designed to help you in the classroom. Great for the part-time or seasoned instructor!

Instructor's Resource Manual

This complete instructor's reference includes sample syllabi, class outlines, transition notes from other computer concepts texts, teaching tips, and strategies for incorporating outside material, QuePresents, and the *CIYF*, Third Edition, Interactive Edition in your lectures.

Test Bank

This extensive manual includes over 2000 multiple-choice, true/false, matching, completion, and short essay questions—perfect for tests, quizzes, and homework! The Test Bank is available in two electronic versions, QueTest and MicroTest.

QueTest™ CD-ROM

QueTest uses the World Wide Web and Web technologies to enable instructors to present questions, record answers, and return customized graded results. QueTest allows you to embed graphics, multimedia, and animation into your HTML questions to provide a whole new testing experience for your students. An internal security system prevents unauthorized access to the questions, answer keys, and student scores. QueTest also comes with an extensive vault of questions, complete with Smart Wizards to help you create your own tests and choose from a variety of question types that can be selected specifically or at random.

QuePresents™ CD-ROM

QuePresents is a CD-ROM library of PowerPoint 97 slides designed to enhance your classroom presentations. QuePresents includes the text and artwork from *CIYF*, Third Edition, as well as a variety of materials used by the author team in their classrooms. QuePresents can be used as is or customized to meet your particular teaching needs.

To order a complimentary copy of the Instructor's Resource Kit (ISBN 1-58076-232-8), please contact your local Macmillan representative or visit us on the Web at www.ciyf3.com.

For Students...

CIYF, Third Edition, Interactive Edition CD-ROM

CIYF, Third Edition, Interactive Edition is an innovative discovery-based learning tool that offers multimedia explorations of key textbook topics, seamless integration of the World Wide Web, and more! Key features include the following:

- Easy and intuitive navigation with Internet Explorer™ or Netscape Navigator®.
- QueLabs offer students the opportunity to experience many of the concepts covered in the text. Each Lab includes sound, video, interactive review questions, and a hands-on exercise for a complete learning experience. Sample interactive lab topics are input and output, computer architecture, disk fragmentation, binary numbers, multimedia and virtual reality, word processing, spreadsheets, databases, networking, programming, email, WWW and Internet tools, Web pages and HTML, Web servers, and Year 2000 issues.
- QueNotes allows students to build a personal study guide by cutting and pasting text or by adding their own materials.
- End-of-chapter Review Exercises, now available electronically, enable students to email results to their instructor.
- "Whacked" World Wide Web sites enable students to experience the power of the Web, even if they don't have live access.

Lay the Foundation for Tomorrow's Success

with *Computers in Your Future*, Third Edition by Meyer, Baber, & Pfaffenberger

Provide the groundwork for student understanding with *CIYF*, Third Edition, with coverage of today's hottest computer topics, engaging pedagogical tools designed to enhance student learning, and a comprehensive resource package that reinforces the text material and encourages learning versus memorization.

Help build your students' future today with *Computers in Your Future*, Third Edition, by Meyer, Baber, and Pfaffenberger!

PHILOSOPHY

Computers are no longer merely tools that we need to learn about in order to do our jobs effectively. Increasingly, they're the means by which we acquire the information and contacts we need to do our jobs. And their impact has deepened to the point that key computer issues—issues about privacy, intellectual property, public safety, and many more—are the central issues of our time.

Computers in Your Future, Third Edition, is the first computer concepts textbook to embrace the challenge posed by the computer's penetration into the very fabric of our personal and professional lives. In this revision, we define three goals: To provide the best and most up-to-date concepts coverage, to introduce the vital component of information literacy, and to build critical thinking into every chapter.

Computer Concepts

Like previous editions of this book, the third edition explains the fundamental concepts of computing and Internet use in clear, accessible language. As you examine each chapter, you'll find that this *entire book has been rewritten from scratch* to provide the most up-to-date coverage you'll find anywhere. The technologies that will touch the lives of students—Linux, Jini, iMac, XML, encrypted email, CSS, and more—are fully integrated into this book's state-of-the-art concepts coverage. Whether discussing fundamental or state-of-the-art concepts, this book does not merely *mention* these concepts. It *explains* them, enabling students to reach a deeper grasp of computer concepts than mere term memorization would allow.

> Students often have trouble understanding the distinction between multitasking and multithreading. To see how this book explains instead of merely mentioning concepts such as these, take a look at the section "Managing Programs" in Module 6A.

Information Literacy

Increasingly, educators agree that computer literacy alone isn't sufficient. In the face of the Internet's rapid growth and employers' increasing need for information-savvy employees, computer literacy must be accompanied by *information literacy*. Information literacy is the capacity to gather information, evaluate this information, and make an informed decision. That's why this comprehensively rewritten edition builds information literacy into every chapter. In Chapter 8's outstanding coverage of Web searching, students learn how to use the Internet effectively to acquire information. And every chapter features *Hot Links* (relevant Web sites) and exercises designed to promote information literacy skills. For students, *Computers in Your Future*, Third Edition, is a springboard to knowledge acquisition that goes far beyond the classroom or the confines of your course. And that's precisely the kind of information literacy that employers are demanding.

> To see just how seriously we've taken the information literacy challenge, examine Module 8A. Research shows that Web users fail to search effectively because they do not understand the need to select the correct search service, and they do not use advanced search techniques. In Module 8A, you'll find concise but state-of-the-art coverage of various types of Internet-accessible services (subject guides, search engines, and specialized databases), as well as coverage of advanced search techniques (inclusion/exclusion operators, phrase searching, and Boolean searching).

Critical Thinking

Information literacy requires *critical thinking*, the capacity to evaluate the quality of information. Increasingly, educators are asked to teach critical thinking skills. That's why this book features in-depth, balanced explorations of the compelling social and ethical issues posed by the computers and the Internet.

To see how we've integrated critical thinking into this book, see Module 11A, "Transportation." In the section on fly-by-wire systems, you'll find an in-depth and balanced discussion of these systems, which have been implicated in several major airline accidents. Students will come away with a deeper appreciation of fundamental computer concepts—here, the importance of simple, easily understood user interfaces. What's more, they'll have learned an important lesson about the need to think carefully and critically about the polemical claims often made concerning such issues.

ORGANIZATION

The three of us have more than six decades of combined classroom experience. And that's why we've designed *Computers in Your Future*, Third Edition, to give you the classroom autonomy you deserve. This book's modular design enables you to cover this material in any sequence you choose. Bear in mind, too, that we've provided much more coverage than you'll likely need to use.

One of the best examples of the advantages of this built-in autonomy is in the coverage of productivity software. The concepts and literacy courses that we teach contain a lab component. Before writing the first edition of *Computers in Your Future* we fought with textbooks that covered productivity software in a single, indivisible chapter. Covering all the material, and expecting it to be meaningful to the students when they had no knowledge of the software, or expecting them to remember it until we covered each type of software, was not reasonable. At times we tried teaching only the pages in the chapter relating to word processing before teaching the word processing program, and only the pages relating to spreadsheets before teaching that material. That too was difficult, causing the students trouble with the review material. Our solution—complete, separate modules for word processing, spreadsheets, databases, and presentation packages. This enables you, the instructor, to cover the material at the time and in the order that you choose.

Please feel free to do that with the entire book. Delay modules early in the book that you would like to cover later, and assign modules from later chapters early in the semester. Drop modules entirely, if you don't have time to cover them. Adapt *Computers in Your Future* to your class, not vice versa. We hope that you enjoy using our book.

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