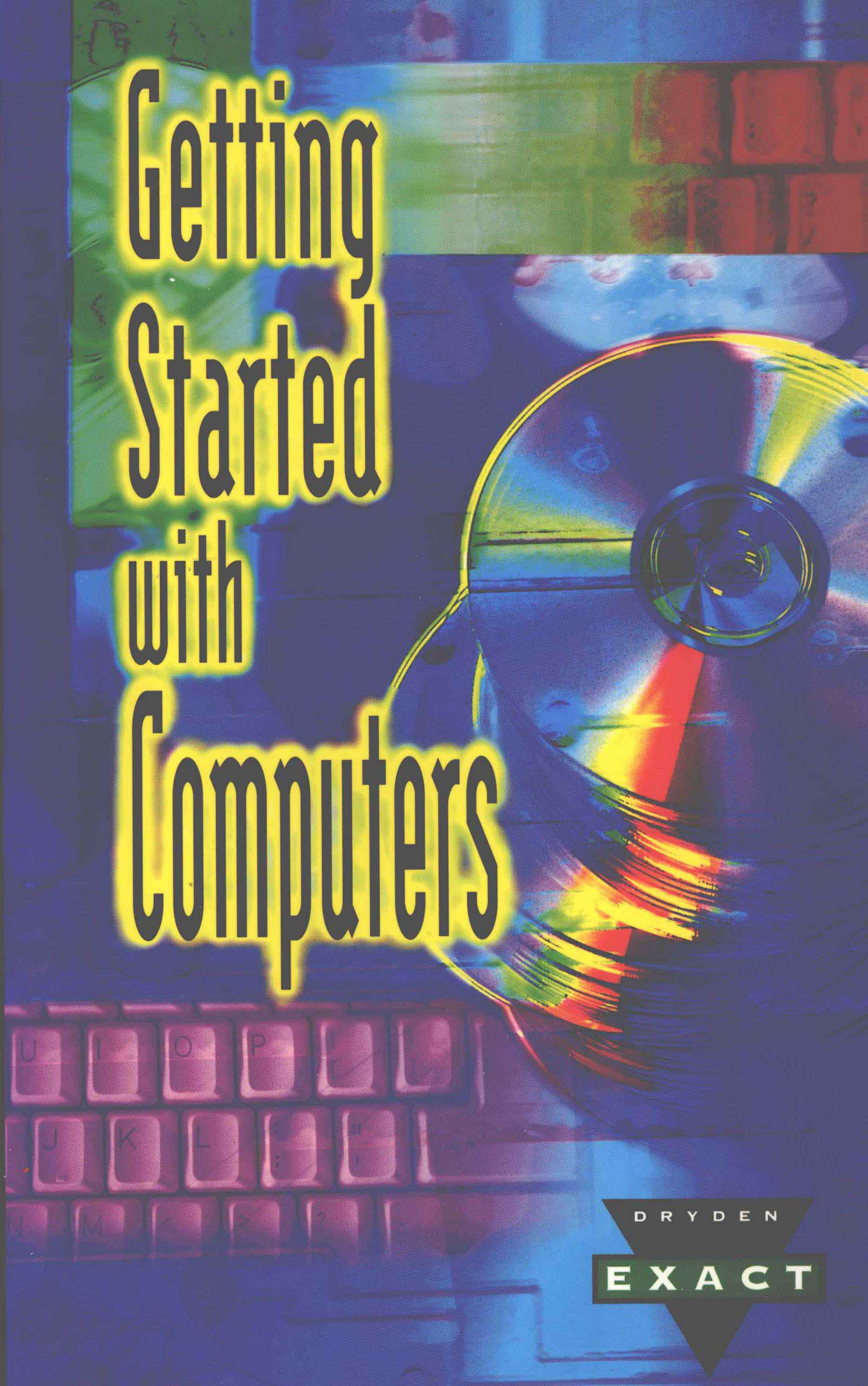
Deborah Morley

Getting Started with Computers



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Deborah Morley

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PREFACE

Over the past fifteen years or so, personal computers have evolved from do-it-yourself kits that people built as a hobby to an indispensable part of our society. Today, knowing how to use a computer is not an option—it is an essential. From using an ATM machine to using the electronic card catalog at the library to surfing the Internet, computers have become an integral part of our everyday life and are here to stay.

For the new computer user, this can be exciting, but also a bit overwhelming. *Getting Started with Computers* takes the essential tools and information a beginning computer user needs and organizes them into three concise modules as follows:

- *Hardware Concepts (Module HW)* helps students understand common computer technology and how a computer works. This module covers the basics of input, output, processing, and storage.
- *Graphical User Interfaces with Windows 95 (Module GUI)* explores the fundamentals of operating systems and graphical user interfaces and shows students how to use Windows 95 effectively.
- *The Internet and Netscape (Module NET)* gives an overview of the Internet, and then shows students how to use Netscape Navigator to find and retrieve information from the Internet. This module also includes instructions for creating a simple Web page.

Getting Started with Computers assumes no prior computer experience on the part of the user and is designed to be used alone for short introductory courses or combined with one or more *Mastering Today's Software* lab manuals for computer application courses that include a one to four week unit on microcomputer fundamentals.

Key Features

Flexible Custom Options. *Getting Started with Computers* can be ordered in a number of ways to suit your course needs:

- Order the full, three-module textbook.
- Order any of the modules separately or as a pair.
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Please see your Dryden sales representative for further information concerning customization and the EXACT program.

Efficient Coverage. While each topic is explained in an easy-to-understand manner, this book is written efficiently, covering the essentials of each module in the length of a typical textbook chapter.

Module Objectives and Introduction. Each module begins with a list of learning objectives and an introduction to let students know what should be learned in the module.

Marginal Tips. Each module includes many helpful and interesting tips in the margins that provide additional information about the topics being discussed, offer time-saving advice for computer users, or issue warnings of common errors to avoid.

Full-Color Illustrations. Numerous screen shots, fully annotated, appear throughout both the GUI and NET modules. The HW module features a combination of full-color illustrations combined with up-to-date photographs.

Summary and Review Questions. At the end of each module is a summary that reviews the key concepts discussed in the module and 30 review questions to test students' retention of the material. The review questions consist of true/false, multiple-choice, matching, completion, and short-answer questions. The solutions to all review questions are included at the end of each module.

Exercises. Each module ends with several written or hands-on computer exercises that reinforce the skills and concepts taught in each module.

Quick Reference Guides. A brief, at-a-glance reference guide concludes each module. The HW module contains a handy checklist for buying a computer while the GUI and NET modules each end with concise summaries of common tasks in Windows 95 and Netscape respectively.

Help for Windows 3.x Users. Included in the GUI module is an appendix titled, "If You've Used Windows Before" that compares and contrasts Windows 3.x with Windows 95 for students who may have some prior experience with older versions of Windows.

Key Terms, Glossary, and Index. Key terms are printed in boldface when they are first introduced, listed with the corresponding page numbers at the end of each module, and defined in the glossary at the end of the text. In addition to a definition, the glossary includes the page number on which each term is first discussed. A comprehensive index is also included at the end of the text.

Supplements

Instructor's Manual and Test Bank. A comprehensive Instructor's Manual with Test Bank is available to adopters of *Getting Started with Computers.* The Instructor's Manual portion includes teaching suggestions for each module, as well as a lecture outline that covers the key terms and concepts that should be introduced, answers to the end of the module exercises and supplementary topics, and exercises not included in the modules. The Test Bank portion includes 100 additional questions per module in true/false, multiple-choice, matching, completion, and short-answer formats. A 10-question quiz is also supplied for each module, ready to be copied and handed out to students. For the Windows 95 and Internet modules, the Test Bank also includes a hands-on computer production test.

Computerized Test Bank. The EXAMaster+ program allows questions and answers to be added, edited, or deleted, and creation of scrambled versions of the same test. On-Line Testing and Grading is also available with the Computerized Test Bank. With this feature, instructors can administer, correct, record, and return computerized exams over a variety of networks.

The *Getting Started with Computers* Web Site. This Web site, found at

http://www.dryden.com/infosys/morley

provides resources for both instructors and students. Instructors will find files for key figures included for all the modules. These files may be downloaded and either printed to make transparencies or inserted in a multimedia presentation. Students can go to the site for an updated list of the **Web Sites of Business Students** included in the NET module, as well as links to other interesting Web sites.

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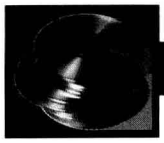
Contents in Brief

Note: This brief table of contents shows entries for all three modules of *Getting Started with Computers*. You may have a customized version of the text that does not contain all of the modules indicated.



CONTENTS

Note: This table of contents shows entries for all three modules of *Getting Started with Computers.* You may have a customized version of the text that does not contain all of the modules indicated.

The term *PC* is generally used to refer only to IBM and IBM-compatible computers; the *Apple Macintosh*, another common personal computer, is usually referred to as a *Mac*.

Introduction

A **microcomputer** (also called a **personal computer** or **PC**) is the smallest, least expensive category of computers (microcomputers usually cost $1,000 to $3,000). They are small enough to fit on or beside a desk and are designed to be used by only one person at a time. Standard-sized microcomputers are often called *desktop* computers, whereas smaller, portable computers are called *laptop*, *notebook*, or *palmtop* computers, depending on their size. The first microcomputers widely accepted for business use were introduced in 1981 by **IBM**; **IBM-compatible** computers (computers made by other manufacturers that are supposed to work the same as IBM microcomputers) followed soon after.

Over one-third of U.S. households and over two-thirds of U.S. businesses have a computer.

Since the introduction of the microcomputer, there has been an explosion of growth in computer usage. Over a period of only about 15 years, personal computers have evolved from do-it-yourself kits that people built as a hobby to an indispensible part of our society. Today, computers are found just about everywhere—at schools, businesses, homes, banks, libraries, supermarkets, video stores, gas stations, and so forth.

Because computers are virtually everywhere, and because schools and employers are beginning to expect some computer knowledge, it is becoming extremely important to be a knowledgeable **computer user**. Before becoming a computer user, it is important to learn a little about what a computer is and how it works. This module will help you to understand common microcomputer terminology and how microcomputers work.

The term *data* is used to describe raw facts; those facts organized into something meaningful is called *information*.

What Is a Computer?

A **computer** can be defined as a programmable device that can accept data, perform operations on that data, and present the results. Looking at this definition a little closer, to *accept data* means that the computer is given data (some facts) to work with; *performing operations on that data* means that the computer will do something with the data; and *presenting the results* means that the computer will show us what it did with the data. Finally, the term *programmable* means that the instructions that tell the computer what to do (called the **program**) can be changed.

Although this module focuses on microcomputers, you may occasionally encounter one of the other categories of computers, so it is important to be familiar with their characteristics. The four categories of computers are shown in Figure HW 1 and described next.

Microcomputer	A small computer used by one person at a time. Used both as a home computer and as a business computer.
Minicomputer	A medium-sized computer used by businesses. More than one person can be connected to and use a minicomputer at one time.
Mainframe	A large, powerful computer used by large businesses, schools, and government agencies. These computers need to be kept in climate-controlled rooms and can be used by many people at one time.
Supercomputer	The most powerful and expensive category of computers (usually several million dollars). Supercomputers require special air-conditioned rooms and are generally used only by very large companies, scientific institutions, and the government.

FIGURE HW 1
The four categories of computers.

(a) Microcomputer

(b) Minicomputer

(c) Mainframe computer

(d) Supercomputer

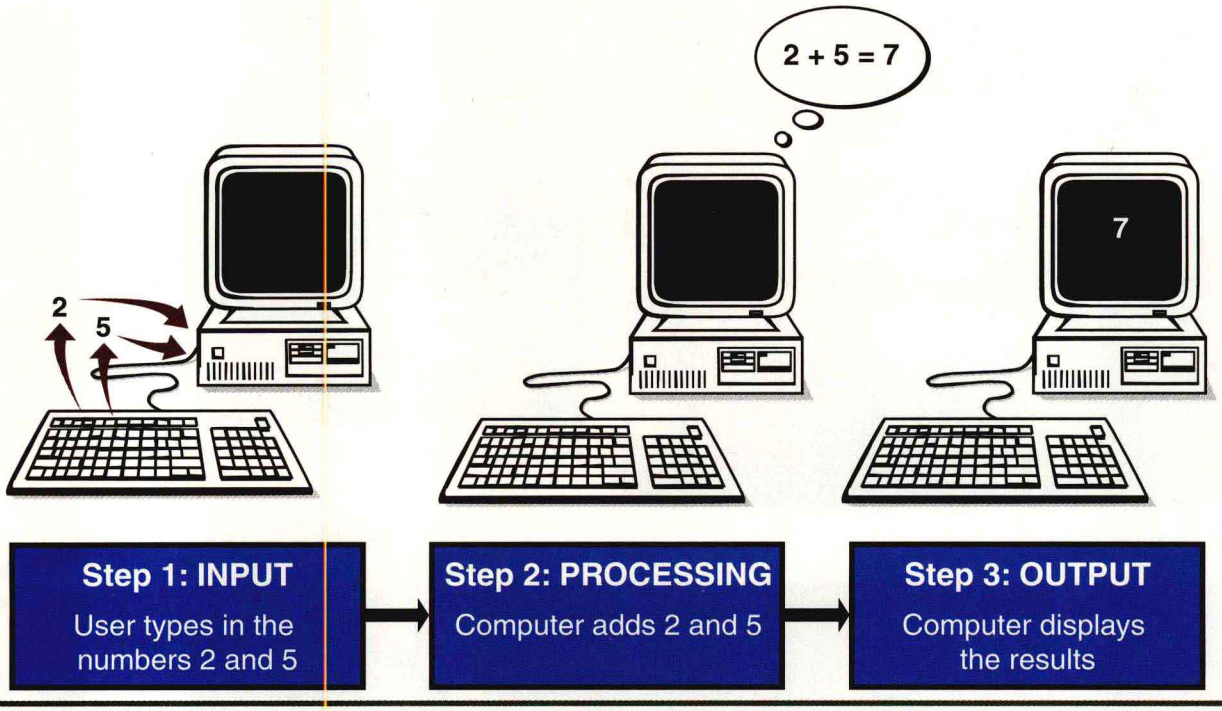
Primary Operations of a Computer

The three operations described in the definition of a computer at the beginning of this section are called *input*, *processing*, and *output*; these are the three primary operations of a computer.

- **Input** is entering data into the computer.
- **Processing** is performing operations on the data.
- **Output** is presenting the results.

For an example, let's assume that we have a computer that has been programmed to add two numbers. The *input* would be giving the computer the two numbers, such as **2** and **5**. The *processing* would be the computer adding those

FIGURE HW 2
The three primary operations of a computer: input, processing, and output.



two numbers according to its program, and the *output* would be the computer giving us the sum **7**. Figure HW 2 illustrates these three operations.

Let's look at a supermarket bar-code reader to see how it fits our definition of a computer. First, the grocery item being purchased—for example, a can of soup—is passed over the bar-code reader—*input*. Next, the description and price of the item are looked up—*processing*. Finally, the item description and price are displayed on the cash register and printed on the receipt—*output*.

Most of the time when a computer is used, a fourth operation called **storage** is performed. Storage is the act of saving data, programs, or output for later use. In the supermarket example, to help with inventory and sales records, it would be helpful to store the number of cans of soup sold.

How Data Is Represented to a Computer

A computer is a *digital* device, which means that it can understand only two conditions, usually thought of as *off* and *on*. These two conditions can be indicated by the absence or presence of a hole in a punched card, a negative or positive magnetic spot, closed or open switch, low current or high current, and so forth. Regardless of how the conditions off and on physically exist, they are represented by the numbers 0 and 1; for example, 0 represents low current (off), and 1 represents high current (on). All processing done by a computer and all data (both numbers and words) are represented by 0s and 1s.

To represent numbers, computers use the *binary numbering system*, which represents all numbers with the digits 0 and 1, just as the numbering system we usually use, the *decimal numbering system*, represents all numbers with the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. For math computations, computers perform binary arithmetic instead of decimal arithmetic.

In the binary numbering system, the first column is the *ones* column, as in the decimal numbering system, but the other columns are different. The second column is the *twos* column, and the third column is the *fours* column, thus *011* represents *six*, and *101* represents *five*.