

COMPUTING FUNDAMENTALS

# Productivity Tools

PC-DOS & MS-DOS®

WordPerfect® 5.0/5.1

Lotus® 1-2-3®

Release 2.01/2.2

dBASE III PLUS®

COMPUTING FUNDAMENTALS

# Productivity Tools

**PC-DOS & MS-DOS®**

**WordPerfect® 5.0/5.1**

**Lotus, 1-2-3.**

**Release 2.01/2.2**

**dBASE III PLUS®**

This book was produced by the Addison-Wesley Electronic Production Department on an Apple Macintosh II with PageMaker. The output was generated on an Apple LaserWriter II NTX.

This book is in the Addison-Wesley *Computing Fundamentals Series*.

Series Editor: William S. Davis

MS-DOS is a registered trademark of Microsoft Corporation.

WordPerfect is a registered trademark of WordPerfect Corporation.

Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. dBASE III Plus is a trademark of Ashton-Tate Corporation.

#### Library of Congress Cataloging-in-Publication Data

Computing Fundamentals: Productivity Tools / by William S. Davis...  
[et al.].

p. cm.

ISBN 0-201-19820-7

1. Electronic data processing. 2. Computer software. I. Davis, William S., 1943-

QA76.C584 1990

89-18180

004—dc20

CIP

Reprinted with corrections May, 1990.

Copyright © 1990 by Addison-Wesley Publishing Company, Inc

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. Printed in the United States of America.

BCDEFGHIJ-HA-943210



---

# Preface

This book was developed to support an introductory microcomputer applications course. If you are a typical student, this course may well be your first formal exposure to computers, so little or no computing experience is assumed. Some schools require this course; others offer it as an elective. However, few students view learning microcomputer applications as an end in itself. Instead, they see the computer as an important tool for future academic work or for a job.

Part One introduces basic computer concepts and terminology; you will need this background to fully understand the applications in Parts Two through Five. The first chapter is an overview of a microcomputer system. Chapter 2 discusses hardware, while Chapter 3 introduces software. A brief fourth chapter previews the tutorials.

MS-DOS/PC-DOS is the subject of Part Two. Chapter 5 introduces operating system concepts and sets the stage for the tutorials that follow. Chapters 6 and 7 teach you how to boot DOS and format a disk. This material is essential to all the tools, so start with these two tutorials. In Chapter 8 you will learn how to determine what files are stored on a disk. Chapter 9 shows you how to manipulate and copy files, while Chapter 10 teaches you how to back up disks and files. Finally, Chapter 11 explains directory structures and introduces the commands you will need to use a hard disk.

WordPerfect 5.0, the subject of Part Three, is a popular word processing program. Chapter 12 describes word processing and identifies the conventions used in this set of tutorials. In Chapter 13 you



will create and print a document; in Chapter 14 you will retrieve and edit that document. Chapter 15 introduces form letters, boilerplate, and mail merge. Some techniques for controlling document format are introduced in Chapter 16. Columns and tables are the subject of Chapter 17. The last tutorial in this section, Chapter 18, shows you how to use some basic desktop publishing features. As this book went to press, WordPerfect version 5.1 had just been released. Appendix F covers the key differences between WordPerfect versions 5.0 and 5.1.

Lotus 1-2-3 is the best selling spreadsheet program. Chapter 19 discusses some spreadsheet concepts and previews the 1-2-3 tutorials that form the balance of Part Four. Chapter 20 teaches you how to create, save, and print a worksheet; in Chapter 21 you will retrieve and modify that worksheet; Chapter 22 shows you some shortcuts such as copying and moving data and formulas. Graphs are the subject of Chapter 23, and Chapter 24 introduces several other useful features. The sample screens were generated using Lotus 1-2-3 release 2.2, but the tutorials can be completed using release 2.01 or 2.2.

dBASE III Plus, the subject of Part Five, is a database management tool. Because the need for a database is not as obvious as the need for word processing or a spreadsheet, Chapter 25 introduces key data management concepts before previewing the tutorials. You will create a database in Chapter 26, maintain it in Chapter 27, and extract information from it in Chapter 28. Chapter 29 explains indexing, teaches you how to define filters and queries, and shows you how to print mailing labels. Finally, you will create and link two database files in Chapter 30.

It is likely that the computer you will use to complete these tutorials will be linked to a network. An understanding of basic network concepts is important, so those concepts are introduced in Part Six.

All the tutorials follow a common pedagogy. The first step in developing a tutorial was to list the tasks a typical beginner might want to perform. Next, the features needed to support those tasks were identified. The necessary features were then introduced *in the context* of the applications.

The process of learning a feature begins with a keystroke by keystroke description. Next, the principles underlying the feature are explained; in other words, you are told why each step is necessary. Finally, you are asked to use the feature on your own, with a sample screen showing the expected result. If you make a mistake, the "What Can Go Wrong?" feature identifies problems, tells you what happened, and suggests a solution.

The "What Can Go Wrong?" feature is particularly valuable. You *will* make mistakes, and software does not always perform as expected. Nothing is more intimidating or discouraging to a beginner

than making a mistake and hitting a dead end. On the other hand, making a mistake, figuring out what happened, and getting back on track *by yourself* is tremendously reassuring.

Note that this book does not pretend to cover every feature of every tool; that is the job of a reference manual. Instead, these tutorials are designed to help you get started. Today, you may find the reference manual difficult to read, but then reference manuals are not written for beginners. However, when you finish these tutorials, the reference manuals *will* begin to make sense because you will no longer be a beginner.

The best way to learn how to use a computer is to use a computer. That, in a nutshell, is what these tutorials are designed to help you do. If you sit down at a computer and actually do the tutorials, you will learn to use these productivity tools. The rest is up to you.

## Acknowledgements

Addison-Wesley's Computing Fundamentals series consists of brief, inexpensive books designed to teach beginners how to use specific software packages, operating systems, and programming languages. The individual titles that comprise the series are currently in use at hundreds of colleges and universities. *Computing Fundamentals: Productivity Tools* is derived from five series titles and offers comparable coverage at roughly half the cost.

Primary credit for this book goes to the authors of the individual titles. Much of Part One is taken from *Concepts, second edition*, by William S. Davis. Part Two, PC-DOS/MS-DOS, is based on Craig A. Wood's source text. The WordPerfect 5.0 chapters are from a text by William S. Davis. Don Byrkett wrote the Lotus 1-2-3 book. Part Five essentially duplicates the dBASE III Plus book by William S. Davis and Paul Schreiner. Part Six is derived in part from *Concepts*, but most of the material is new.

Key reviewers included: L. Anne Cole, SUNY at Plattsburg; Bill Petersen, Mount Hood Community College; Mary Rasley, Lehigh Community College; Dana Wyatt, University of North Texas; and Pat Williams from the National Education Center in Sacramento. Although there are too many names to mention here, the reviewers of the five source titles deserve additional thanks. To ensure the accuracy and effectiveness of this material, Addison-Wesley commissioned Ken Cantrell, Jean Cristoff, and Christine White, three Miami University students, to test the tutorials. They provided invaluable feedback. Finally, Addison-Wesley's production team, coordinated by Helen Wythe, did an excellent job on a complex project.

WSD  
Oxford, Ohio

# Contents

## Part One. Computer Concepts 1

1. Getting Started 3
  - Computer Literacy 3
  - What Is a Computer 4
  - A Computer System 6
  - Summary 7
2. Hardware 9
  - Memory 9
  - The processor 11
  - Input and Output 13
  - Secondary Storage 15
  - Linking the Components 18
  - Networks 19
  - Summary 20
3. Software 23
  - Writing Programs 23
  - Commercial Software 26
  - The User Interface 28
  - The Software Environment 30
  - Summary 33
4. The Tools 4
  - A Plan of Attack 36
  - Getting Ready 39
  - Summary 41

**Part Two. PC-DOS & MS-DOS**

5. The Operating System 45
  - Operating System Functions 45
  - Loading the Operating System 47
  - DOS Commands 49
  - Entering DOS Commands 50
  - Disk Files and Naming 50
  - User (Visible) and Hidden Files 51
  - DOS Device Names 52
  - Equipment Utilized 52
  - Summary 52
6. Starting (Booting) DOS 55
  - Booting the Operating System 56
  - Checking and Changing the System Date (DATE) 61
  - Checking and Changing the System Time (TIME) 62
  - Changing the Current (Default) Disk Drive (d:) 62
  - Clearing the Screen (CLS) 63
  - Different Versions of DOS 63
  - Printing Information Displayed on the Screen 64
  - Turning the Printer Echo Mode On and Off 64
  - Logging Off DOS 65
  - Summary 66
7. Preparing a New Disk for Use 68
  - Formatting a Disk 68
  - Preparing Data Diskettes (FORMAT) 72
  - Preparing Bootable Diskettes (FORMAT /S) 75
  - Formatting a Diskette with a Volume Label (FORMAT /V) 78
  - Summary 81
8. Displaying Information about a Diskette or Disk 83
  - Displaying the Table of Contents (Directory Information) of a Disk 83
  - Sending Directory Information to the Printer (DIR > PRN) 91
  - Displaying Directory Information in Alphabetical Order (DIR | SORT) 92
  - Displaying Directory Information One Screen at a Time (DIR | MORE) 93
  - Checking a Diskette/Disk (CHKDSK) 94
  - Diskette/Disk Volume Label 98
  - Summary 100



9. Manipulating Files and File Characteristics	104
Copying One User File (COPY)	104
Copying Selected User Files (COPY)	110
Removing (Deleting, Erasing) File Names from a Disk's Directory (DEL, ERASE)	114
Changing File Names (RENAME)	121
Text Files	123
Summary	126
10. Backing Up Diskettes and Files	129
Backup Copies of Files and Diskettes	129
Making Identical Diskette Copies (DISKCOPY)	130
Backing Up Files	132
Comparing the Contents of Files (COMP)	134
Summary	134
11. Using a Hard Disk	136
Background Information	136
Managing Disk Files	137
Types of Directories	137
Creating (Making) Subdirectories (MKDIR, MD)	140
Changing the Current Directory (CHDIR, CD)	144
Automatically Displaying the Current Directory Name with PROMPT	148
Copying Files Between Different Directories	149
Displaying Information in a Directory Structure	151
Setting an Extended Search Path for DOS to Locate Commands (PATH)	151
Deleting (Removing) Subdirectories (RMDIR, RD)	154
Summary	156
<b>Part Three. WordPerfect 5.0</b>	<b>161</b>
12. Word Processing on a Computer	163
Word Processing	163
Conventions	164
A Look Ahead	167
Summary	167
13. Creating and Printing a Document	168
Starting WordPerfect	168
Exiting WordPerfect	173
Typing a Document	174
Correcting Typing Errors	179
Printing the Document	183
Exiting WordPerfect	185
Summary	185

14. Editing a Document	188
The Second Tutorial	188
Retrieving a Document from Disk	189
Adding Material to a Document	191
Editing	197
Finishing Touches	205
The HELP Feature	208
Exiting WordPerfect	208
Summary	208
15. Form Letters and Boilerplate	211
Business Communications	211
Creating Some Boilerplate Files	212
The List Files Screen	214
Creating Templates	217
Adding Custom Data	220
Mail Merge	226
Exiting WordPerfect	233
Summary	233
16. Controlling Document Format	236
Preparing a Document for Printing	236
Special Effects	245
Printing the Letters	250
Exiting WordPerfect	254
Summary	254
17. Columns and Tables	256
Creating a Table	256
Parallel Columns	261
Newspaper Columns	270
Exiting WordPerfect	270
Summary	271
18. Desktop Publishing and Graphics	273
Desktop Publishing	273
Checking Your System	274
Changing Print Size and Appearance	275
Drawing Lines	275
Graphics	279
Exiting WordPerfect	284
Summary	284
<b>Part Four. Lotus 1-2-3</b>	<b>287</b>
19. Electronic Spreadsheets	289
Electronic Spreadsheets	289

Lotus 1-2-3	292
The Tutorials	293
Summary	293
20. Creating, Saving, and Printing a Worksheet	295
Starting 1-2-3	295
Creating a Worksheet	299
1-2-3 Menus	312
Saving a Worksheet	317
Modifying a Worksheet	319
Printing a Worksheet	323
Exiting 1-2-3	326
Summary	327
21. Modifying a Worksheet	330
Overview	330
Retrieving a Worksheet	331
Deleting Rows and/or Columns	333
Inserting Rows and/or Columns	338
Adjusting Column Widths	341
Adjusting Label-Prefix Characters	345
Formatting Worksheet Values	348
Erasing Worksheets	353
Exiting 1-2-3	355
Summary	355
22. Some Worksheet Shortcuts	358
Overview	358
Using Point Mode to Enter Addresses	359
Copying Data from One Part of the Worksheet to Another	365
Moving Data from One Part of the Worksheet to Another	373
Functions	376
Summary	379
23. Creating Worksheet Graphics	383
Overview	383
Types of Graphs	386
Creating Graphs	387
Labeling Graphs	394
Saving Graphs	398
Other Graphing Features	399
Summary	400
24. Other Useful Features	403
Overview	403
Freezing Row Labels and Column Headings	404

Using Windows	406
Introducing Macros	409
Macro Examples	417
1-2-3 Add-Ins	419
Summary	421
<b>Part Five. dBASE III Plus</b>	<b>425</b>
25. Data Management	427
Data Management on a Computer	427
Database Concepts	427
Conventions	432
Summary	432
26. Creating a Database	434
Starting dBASE III Plus	434
The dBASE III Plus Assistant Screen	438
Creating the First Database File	445
Entering Data into a Database	452
Appending More Records	456
Exiting dBASE III Plus	457
Summary	457
27. Maintaining a Database	461
The Second Tutorial	461
Loading a Database File from Disk	461
Opening and Closing Files	464
The <i>EDIT</i> Command	464
Examining the Database Structure	466
Modifying the Database Structure	467
Locating a Record in the Database	471
Entering Data in a Record with the <i>REPLACE</i> Command	477
Full-Screen Editing with the <i>BROWSE</i> Command	479
Deleting Records	486
Exiting dBASE III Plus	487
Summary	487
28. Extracting Information from a Database	492
Working from the Dot Prompt	492
Retrieving Records from a Database	498
Modifying Commands	501
The Scope Clauses	504
Condition Clauses	506
Printing the Output	511
Exiting dBASE III Plus	512
Summary	513

29. Manipulating a Database	515
Rearranging Database Order	515
Indexing	516
Filters and Queries	528
Printing Mailing Labels	534
Exiting dBASE III Plus	539
Summary	539
30. Using Multiple Database Files	541
Designing a Database	541
Creating a Second Database File	543
Working with Multiple Databases	547
Relating Multiple Databases	550
Using View File	556
Creating a Report Form	559
Exiting dBASE III Plus	564
Summary	564
<b>Part Six. Networks</b>	<b>567</b>
31. Data Communication and Networks	569
Networks	569
Signals	572
Communication Systems	574
Summary	577
<b>Appendix</b>	<b>581</b>
A. DOS Quick Reference	583
B. WordPerfect 5.0 Quick Reference	587
C. Lotus 1-2-3 Quick Reference	590
D. dBASE III Plus Quick Reference	594
E. Answers to Chapter Self-Tests	599
F. WordPerfect 5.1	606
<b>Index</b>	<b>611</b>

## ■ PART ONE

---

# Computer Concepts

---





# -1

---

## Getting Started

**T**his chapter:

- discusses the importance of computer literacy
- summarizes the essential components of a modern computer
- introduces the stored program concept
- distinguishes between hardware and software

---

### Computer Literacy

In the early 1950s the first commercial computer, the UNIVAC I, sold for over one million dollars. Today, an infinitely better computer can be purchased for a few *thousand* dollars. If the automobile industry had performed nearly as well, a luxury car would now cost less than \$100, run thousands of miles on a single gallon of gasoline, and almost never break down.

In today's economy, **computer literacy** is almost as important as traditional literacy. Computers have become essential in virtually every discipline, and people who cannot (or will not) deal with them find it difficult to function effectively. Computer literacy implies an ability to *use* a computer. In this book you will learn how to use four popular computer programs. PC-DOS is an operating system; it serves as the base for the other applications. WordPerfect 5.0 is a word processing program, Lotus 1-2-3 is a spreadsheet program, and

dBASE III Plus supports database management. They all run on IBM PC/XT/AT, PS-2, and compatible computers.

The book is organized as a series of tutorials. Don't just read them; you can't learn how to use these tools by reading about them. Instead, sit down at a computer and follow along, step by step. You'll be surprised at how quickly your confidence and skill develop.

There are some basic computer concepts that you should understand before you begin. They will be covered in the balance of this chapter and in Chapters 2 and 3.

## What Is a Computer?

### Data and Information

A medieval astronomer named Tycho Brahe spent his entire adult life observing and recording the positions of the planets. His successor, Johannes Kepler, sensed a pattern in those observations and spent much of his life processing them, performing tedious computations in an attempt to verify the pattern. He eventually succeeded, publishing his laws of planetary motion in 1621.

Tycho Brahe collected **data**, raw facts. Kepler's laws represent **information**. Using them, he could understand and predict the motions of the planets. Using them, modern scientists and engineers plan space flights. Information has meaning.

Clearly, Kepler's laws were derived from Brahe's data, but the raw data were useless without processing. Until they were organized and the necessary calculations performed, the data were just unstructured facts with no clear meaning. Knowing the exact position of Mars on April 1, 1599 might earn an extra move in Trivial Pursuit, but, by itself, that fact is not very useful. Processing data extracts their meaning.

### Data Processing

A computer is a **data processing machine**. Data flow into the machine as **input** (Fig. 1.1). Information flows from the machine as

**Figure 1.1**  
A computer is a machine that processes data into information. It accepts data, processes these data, and generates information as output.

