

CONTENTS

Preface xiii

CHAPTER 1

ENHANCING ACADEMIC LEARNING TIME Computers and Technology for Instruction 1

Academic Learning Time	2
Educational Media and Instruction	10
The Unique Contributions of the Computer	17
Examples of Computers and ALT	18
Summary and Overview	26
References	28

CHAPTER 2

CLASSROOM APPLICATIONS Tutorials, Drills, Simulations, and Tools 31

Tutorials	32
Drills	42
Simulations	50
Arcade Games	55
Tool Applications	56
Modes of Computer Use	62
Computers and Teaching Style	73
Summary	74
References	76

HOW DO COMPUTERS ENHANCE
LEARNING?

Mastery Learning	79
Direct Instruction	85
Overlearning	88
Memorization Skills	90
Peer Tutoring	92
Cooperative Learning	92
Monitoring Student Progress	95
Student Misconceptions	97
Prerequisite Knowledge and Skills	98
Immediate Feedback	101
Parental Involvement	102
Learning Styles	104
Classroom Management	105
Teacher Questions	107
Study Skills	109
Homework	111
Writing Instruction	113
Early Writing	115
Learning Mathematics	117
Estimation Skills	117
Reading Comprehension	119
Science Experiments	121
Transfer of Learning	122
Summary	127
References	127

THE COMPUTER'S ROLE IN THE
CURRICULUM

Stages of Implementation	130
Computer Proficiency	131
Goals and Objectives	132
Keyboarding Skills	136
The Computer and the Regular Curriculum	138

Expanding the Curriculum	144
The Computer as Agent of Change	145
Are Computers Really Essential?	147
Two Examples	148
Summary	149
References	149

CHAPTER 5

ACQUIRING AND USING COMPUTERS

151

Resistance to Computers	152
Selecting Software	154
Integrating Software into the Curriculum	160
Off-Computer Activities	165
Software Expense	168
Sharing and Disseminating Software	170
Acquiring Computers	171
Maintaining Computers	173
Training Teachers to Use Computers	174
Where to Put Computers	175
Supervising the Computers	182
Teacher-Directed Use of Computers	184
Using the Computer with Large Groups	187
Using the Computer with Small Groups	189
Negative Effects of Computer Use	190
Summary	194
References	197

CHAPTER 6

COMPUTER HARDWARE

What's There and How to Choose It

199

Microcomputer Systems	200
Major Brands of Computers	205
Printers	208
Other Peripheral Devices	210
Large Screens and LCD Projection Systems	215

How to Select Hardware 218

Summary 220

References 220

CHAPTER 7

COMPUTER SOFTWARE

Important Tools for Students and Teachers 221

Word Processing 222

Word Processing Aids 229

Database Management Programs 234

Electronic Spreadsheets 242

Integrated Packages 244

Reference Materials: Encyclopedias and Atlases 247

Summary 252

References 253

CHAPTER 8

TOOLS FOR TEACHERS

Computer Software Programs for Educators 255

Test Generators 256

Gradebooks 263

Management Systems 269

Authoring Systems 275

Graphics Packages 281

Desktop Publishing 288

Summary 292

References 292

THE WAVE OF THE FUTURE
Hypertext, Multimedia, and Other Innovative
Concepts

293

Hypermedia 294
CD-ROM and Laserdiscs 304
Interactive Video Technology 314
Computer Modems and Telecommunications 316
Other Developments 320
Summary 323
References 324

SPECIAL CONSIDERATIONS
Media Centers, Libraries, Writing Centers,
and Computer Labs

325

Computerized Library Usage 326
Writing Centers 332
Computer Laboratories 338
Summary 339
References 340

List of Vendors 341
Glossary of Important Terms 349
Index 359