CONTENTS

Chapter One The Microcomputer: What It Is and What It Ain't 1

Computers and Microcomputers 2
Past Performance 3
The Breakthrough 3
Mix and Match—Parts of a Computer System 4
What Microcomputers Actually Look Like 6
Capabilities 8
Shortcomings 9
The Bottom Line 9
References 9

Chapter Two What the Microcomputer Offers to Education 11

Relevant Education 11
An Opportunity for Great Teaching 12
Increased Student Motivation 12
Feedback 13
Individualized Instruction 13
The Case for Microcomputers 14
A Change in Scope for Large Districts 14
New Hope for Small Schools 15
With Dreams Come Responsibilities 15
References 16

Chapter Three How to Get Started 17

Build It or Buy It? 17
What Configuration Do You Need? 18
Where to Buy It 18
Where to Put It 19

A Word about Security 19
One Class—One Computer 20
The Portable Computer 20
Directed Individual Activity 21
Free Access Computing 21
Student Computer Club 21
The Future 22
Student Reaction—and How to Exploit It 22
Teacher Reaction—and How to Overcome It 23
Plug It In and Go 24
References 24

Chapter Four Computer Science **25**

A Note on Computer Literacy 25
A Course in Computers and BASIC 26
Teacher's Notes on Computers and BASIC 29
List of Problems 48
Computer Puzzles 50
Notes on Building a Computer from a Kit 52
Suggested Topics for an Advanced Computer Course 53
References 53

Chapter Five Problem-Solving **55**

Where Calculators Fit 56
A Mixture of Mathematical Marvels 57
Everyday Life 61
Spectacular Science 63
An Argument for Program Documentation 67
Summing Up 69
References 70

Chapter Six Instructional Simulation **71**

What Is a Computer Simulation? 71
Why Use Simulations? 72
The Right Place and the Right Time 72
There Must Be a Catch 76
Available Materials 76
Developing Simulations—A Major Investment in Time 91
References 92

Chapter Seven Games 94

Why Games? 94
Kinds of Games 97
Sources of Games 97
More Games 116
References 117

Chapter Eight Computer-Assisted Instruction (CAI) 118

An Overview of CAI 119
Back to Micro CAI 122
And So It Goes . . . 136
References 136

Chapter Nine Administrative Computing in Miniature 138

Student Information Program 139
Test Scores Program 141
Summary 148

Chapter Ten Where to Go for Help 149

Special Interest Groups and Publications 149
Users Groups—Past and Present 154
Bibliographies Available 155
Clearinghouses 156
Statewide Organizations 157
A Final Routing to Chapter References 157

Chapter Eleven Deciding What to Buy 158

Discussion of the Classic Debates 158
Today's Products 161

Appendix Comparison of Systems 171

Index 175