Table of Contents

Introduction David L. Ferguson	XI
Part 1. Advanced Technologies in the Teaching of Science	
Using Technology to Teach Thermodynamics: Achieving Integrated Understanding	5
LEGO/Logo and Electronic Bricks: Creating a Scienceland for Children	61
Modelling and Theory Building: Technology in Support of Student Theorizing	91
Courseware for Introductory Foundations of Computer Science Peter B. Henderson	115
Learning Electricity and Cognitive Modeling	151
The Didactic Potential of Computer Aided Modeling for Physics Education	165
The Computer as a Conceptual Lab: Learning Dynamics with an Exploratory Environment	209

Michele Trimarchi and Paolo Manzelli	233
Intelligent Learning Technology for Science Learning	253
The Use of Interactive Software for the Exploration of Simple Feedback Systems	269
Teaching Operations Research Using "Home Made" Software João N. Clímaco, C. Henggeler Antunes and João P. Costa	305
Learning Problem Solving Through Computer Programming Emrah Orhun	339
Interactive Learning and Biology: A Hypermedia Approach Wendy Hall, Gerard Hutchings, Les Carr, Peter Thorogood and Brian Sprunt	363
Part 2. Advanced Technologies in the Teaching of Mathematics	
	385
Mathematics Interrelationships Between Mind and Computer: Processes, Images, Symbols	385
Mathematics Interrelationships Between Mind and Computer: Processes, Images, Symbols	•

Understanding Concepts in Algebra Using Linked Representation Tools	497
Michal Yerushalmy	.,
Computers in Teaching and Learning Discrete Mathematics and Abstract Algebra	525
Symbolic Computation Systems and Algebraic, Graphical, and Numerical Viewpoints in Elementary Calculus	565
Experiences of Computer Laboratory in Mathematics Teaching Maria Teresa Galizia, Maria Mascarello, Anna Rosa Scarafiotti and Carla Marconi	585
Mathematics and Technologies	617
Intelligent Tutoring Systems and Mathematics: A Survey of What's Going on in France	647
The Computer: Some Changes in Mathematics Teaching and Learning Bernard Cornu	687
An Introductory Course in Quantitative Methods: Computers in the Teaching of Problem Solving to College Students	709
Biographies	735
Subject Index	739